

Smithsonian Contributions to Knowledge

189

METEOROLOGICAL OBSERVATIONS

181

ARCTIC SEAS.

BY

SIR FRANCIS LEOPOLD MUIRSTOCK, R.N.

MADE ON BOARD THE NORTH ATLANTIC STEAMSHIP "FRED" IN THE NORTH SEA AND NORTH
ATLANTIC OCEAN, IN THE YEARS 1871, 1872, 1873, AND 1874.

REVISED AND CORRECTED.

BY JOHN EDWARD SMITH, M.A., F.R.S., F.R.A.S., F.R.G.S.

BY

CHARLES A. SCHOTT,

ASSISTANT U.S. NAVY SURVEYOR.

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CHART
Showing the
TRACKS OF THE YACHT "YOK"
IN THE ARCTIC REGIONS
Under command of

CAPTAIN—SIR FRANCIS L. MCCLINTOCK, R.N.
1857 to 1858.

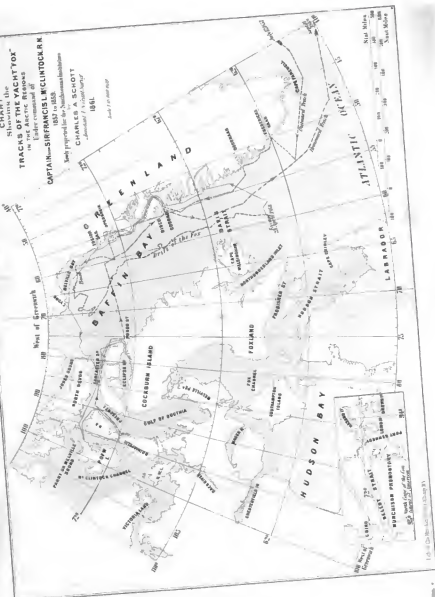
Ready prepared for the North-west Passage

CHARLES A. SCHOTT
—Assistant Hydrographer—

1881

Scale 1 in 100,000

Scale 1 in 100,000



6469.
SMITHSONIAN CONTRIBUTIONS TO KNOWLEDGE.

146

METEOROLOGICAL OBSERVATIONS

IN THE

ARCTIC SEAS.

BY

SIR FRANCIS LEOPOLD M'CLINTOCK, R. N.

MADE ON BOARD THE ARCTIC SEARCHING YACHT "FOX," IN DAFFIN BAY AND PRINCE
REGENT'S INLET, IN 1857, 1858, AND 1859.

REDUCED AND DISCUSSED,

AT THE EXPENSE OF THE SMITHSONIAN INSTITUTION.

BY

CHARLES A. SCHOTT. —

ASSISTANT U. S. COAST SURVEY.

[ACCEPTED FOR PUBLICATION, APRIL, 1861.]



COLLIER, PRINTER.
PHILADELPHIA.

CONTENTS.

<u>LIST OF ILLUSTRATIONS</u>	<u>PAGE</u>
<u>PREFACE</u>	<u>vii</u>

PART I.—TEMPERATURES.

<u>Record and discussion of the temperature</u>	<u>25</u>
<u>Tabulation of record</u>	<u>1</u>
<u>Discussion of the annual variation of the temperature of the air</u>	<u>13</u>
<u>Discussion of the diurnal variation of the temperature of the air</u>	<u>22</u>
<u>Table of hourly values of the variation of temperature</u>	<u>23</u>
<u>Connection of the lunar phases with the changes of temperature</u>	<u>27</u>
<u>Effect of the winds on the atmospheric temperature</u>	<u>28</u>
<u>Temperature of the soil</u>	<u>30</u>
<u>Temperature of the sea</u>	<u>32</u>
<u>Table of monthly means of temperature registered by modern Arctic expeditions, by Captain McClinton</u>	<u>36</u>

PART II.—WINDS.

<u>Record and discussion of the direction and force of the wind—Introductory remarks</u>	<u>33</u>
<u>Record of the observations</u>	<u>40</u>
<u>Method of reduction</u>	<u>62</u>
<u>Average velocity of the resulting wind</u>	<u>66</u>
<u>Average velocity of the winds</u>	<u>67</u>
<u>Relative frequency of the winds</u>	<u>69</u>
<u>Relative quantity of air passed over the place of observation</u>	<u>70</u>
<u>Rotation of the winds</u>	<u>71</u>
<u>Occurrence and duration of storms</u>	<u>73</u>

PART III.—ATMOSPHERIC PRESSURE.

<u>Record and reduction of the observations for atmospheric pressure—Introductory remarks</u>	<u>75</u>
<u>Record of the observations</u>	<u>81</u>
<u>Comparison of the readings of the aneroid and mercurial barometers</u>	<u>90</u>
<u>Resulting mean 4-hourly and mean monthly readings of the mercurial barometer in the months of September, 1851, and February and April, 1858.</u>	<u>100</u>

	Page
<u>Diurnal variation of the atmospheric pressure</u>	101
<u>Annual variation of the atmospheric pressure</u>	104
<u>Diurnal extremes</u>	106
<u>Monthly and annual extremes</u>	106
<u>Relation of the atmospheric pressure to the direction of the wind</u>	107

APPENDIX

<u>Record of the weather kept on board the Yacht "Fox," from July 3, 1857, to September 18, 1859, with notes of the specific gravity of sea water, on the state of the ice, appearance of animals, etc. etc.; on the aurora borealis and atmospheric phenomena</u>	111
<u>Tabulation of auroras, with observations and notes, by Dr. David Walker</u>	145

ILLUSTRATIONS.

PLATES.

Chart showing the tracks of the yacht "Fox" in the Arctic regions under command of Captain (now Sir) Francis L. McClintock, R. N., 1857—1859. Newly projected for the Smithsonian Institution, by Charles A. Schott, Assistant U. S. Coast Survey, 1861. Scale 1 : 15,000,000. (*Frontispiece*)

PAGE

WOOD CUTS

Figure A. Diagram showing the annual fluctuation of the temperature of the air at Port Kennedy	21
Figure B. Diagram showing the diurnal amplitude of the temperature	24
Figure C. Diagram showing the diurnal variation of the temperature	26
Figure 1. Diagram showing the mean velocity of the winds in Baffin's Bay, at Port Kennedy, and at Van Hevelsdr's harbor	68
Figure 2. Diagram showing the relative frequency of the winds at the same places	70
Figure 3. Diagram showing relative quantity of air passed over at the same places	71
Figures 4—8. Diagrams illustrating five storms at Baffin's Bay	74, 75, 76
Figure 9. Diagram showing the diurnal variation of atmospheric pressure in Baffin's Bay	103
Figure 10. Diagram showing the same for Port Kennedy	104
Figure 11. Diagram showing a halo and parhelicus, December 4, 1857	119
Figure 12. Diagram of a halo, March 7, 1858	123

PREFACE.

THE following series of reduced meteorological observations have been prepared from the records kept on board the yacht "Fox," in 1857, '58, '59, during the expedition in search of Sir John Franklin, under the command of Captain McClintock,¹ R. N.

The records of these observations were presented by the commander of the expedition to the Institution, to be used in such manner as might be deemed best suited to advance the science of meteorology. They were accordingly placed in the hands of Mr. Charles A. Schott, of the U. S. Coast Survey, to be discussed in accordance with the plan proposed by Sir John Herschel in his work on meteorology, and which was adopted in regard to the records made during the voyage of Dr. Kane in the Arctic regions. These reductions form a part of a series of articles on the climatology of the Arctic portions of the North American continent, which are in the course of preparation and publication by the Smithsonian Institution. Of these the investigations relative to the winds of the Northern Hemisphere, by Prof. Coffin, the observations by Dr. Kane, and those by Dr. Hayes, form portions. It is to be hoped that an opportunity will be afforded for a thorough discussion of all the observations which have been made by the different Arctic explorers on a similar plan, since such a work would not only throw much light on the climatology of the continent of North America, but also on the meteorology of the globe.

The following brief account of the expedition of "the Fox," compiled from the narrative of the commander, and other sources, will perhaps be of service in rendering the observations more easily understood, as well as of interest to those who may not have ready access to the works from which the compilation has been made:—

Sir John Franklin was appointed in 1845 to the command of an expedition consisting of two ships, the *Erebus* and *Terror*, fitted out for a further attempt to discover a northwest passage. The expedition sailed from England on the 26th of May, 1845, and was last seen by a whaler in Baffin's Bay on the 26th of July following. In the autumn of 1847 public anxiety began to be manifest for the safety of the explorers, from whom nothing more had been heard, and several expeditions were sent from 1848 to 1854 in search of them. In these active exertions

¹ Now Sir Francis Leopold McClintock.

Lady Franklin took the lead, and by her unwearied labors and sacrifices aroused the sympathy of the whole civilized world. Aid was offered by France and even by Tasmania. Citizens of the United States replied to her call by equipping two expeditions, the expense of which was principally borne by Mr. Henry Grinnell, of New York.

In August, 1850, traces of the missing explorers were discovered, where they had spent their first winter, but no further tidings were obtained until the spring of 1854, when Dr. Rae, of the Hudson's Bay Company, ascertained that they had been seen by the Esquimaux on the west coast of King William's Island, in the spring of 1850, and it was thought that they had all died on an estuary of the great Fish River. The attempt, in 1855, of the Hudson's Bay Company to explore this river resulted in obtaining but little additional information, and a few relics from the Esquimaux.

It was at this time that Lady Franklin, who had previously sent out three expeditions at her own expense, again earnestly urged the renewal of the search, that the fate of her husband and his companions might not be left in uncertainty, and in the spring of 1857 commenced the preparations for another expedition as a final effort to trace "the footsteps of these gallant men in their last journey upon earth," and, if possible, to rescue from entire loss some of the scientific results for which they had sacrificed their lives.

The small steamer *Fox*, of 177 tons burthen, was purchased for the service, and Lady Franklin was highly gratified in obtaining the willing service of Captain McClintock as commander of the expedition. This officer had signally distinguished himself in the voyages of Sir James Ross and Admiral Austin, and especially in his extensive journeys on the ice when associated with Captain Kellett.

The voyagers sailed from Aberdeen, July 1st, 1857, and after a favorable run across the Atlantic, passed Cape Farewell, the southern point of Greenland, on the 13th, and arrived at Frederikshavn on the 19th of the same month. After stopping to take in coal at Waigat, they reached Upernavik, the most northerly of the Danish stations in Greenland, and then bore away, on the 6th of August, directly westward for the purpose of crossing Baffin's Bay; but, on the evening of the 8th, their progress in that direction was stopped by impenetrable ice in Latitude $72^{\circ} 40'$ and Longitude $59^{\circ} 50'$ west. They then steered northward with the hope of finding a passage westward in a higher latitude, but in this they were disappointed, and, on the 19th of August, became entangled in the ice, and thus remained two hundred and forty-two days, until April, 1858. During this period, the "*Fox*" drifted from Latitude 75° north and Longitude 62° west, eleven hundred and ninety-four geographical miles in a southerly direction, almost to the lower extremity of Greenland. (See the accompanying map.)

On the 26th of April, the ice suddenly and almost entirely disappeared; the ship was again headed northward for another attempt, and arrived on the 19th of June in Melville Bay. They then again steered westward across Baffin's Bay, and, finally, entered Lancaster Sound in the beginning of August. They next sailed westerly and southerly until they reached the Longitude of 96° west, and about Latitude 73° north. From this point they returned eastward through Barrow's

Straits, which they found clear of ice, and went southerly down Prince Regent's Inlet to the mouth of Bellot Straits, where they arrived on the 20th of August, and than which they were destined to remain for more than a year.

Bellot Strait, which is near Latitude 72° north, is the water communication between Prince Rupert's Inlet and that part of the western sea now known as Franklin Channel. It separates the extreme northern part of the continent of North America, or Boothia Felix, from North Somerset. The shores of this strait are faced in many places with lofty granite cliffs, and some of the adjacent hills rise to fifteen or sixteen hundred feet above the level of the sea. Through this channel the tide runs at the rate of six or seven knots an hour, and also frequent stormy winds blow from the west which probably affect the local meteorology of the country immediately around the eastern entrance.

At the time of the arrival of the expedition, this strait was choked up with masses of ice, but as the season advanced these obstacles so far gave way that the voyagers were enabled to work the ship through to the western outlet. But beyond this point they were unable to advance further in the same direction, and on account of the exposed position they were obliged to return and seek for safer winter quarters. These they found near the eastern entrance of the strait in a commodious harbor named Port Kennedy. At this place they remained frozen up from the 27th of September, 1858, until the 9th of August, 1859.

Early in the spring, three exploring parties set out from Port Kennedy in different directions, severally under the command of Captain McClintock, Captain Young, and Lieutenant Hobson. The routes traversed by these parties included the southern portion of the coast of Prince of Wales Island—the western coast of Boothia Felix, and the entire circumference of King William's Land. These explorations furnished important additions to the map of the Arctic regions as well as definite information relative to the fate of Sir John Franklin and his devoted companions. On the western coast of King William's Island, several relics of the lost mariners were found, and among the number a tin-case containing a record of the unfortunate explorers.

From this record, the following facts were obtained, namely, the Franklin Expedition, spent the first winter after leaving England at Beechy Island near the south-western point of North Devon (see map). From this place it passed down Franklin Channel to within fifteen miles of the northwest coast of King William's Island (see the spot indicated on the map), where the ships were frozen in the ice, and finally abandoned on the 22d of April, 1848. Sir John Franklin died on the 11th of June, 1847, and several other deaths had occurred. The survivors, one hundred and five in number, under the command of Captain Crozier, landed on King William's Island, where all knowledge of their subsequent journeying ceases; they probably, however, all perished in their endeavor to reach a less inhospitable region.

Although the whole shore of King William's Island was three times patiently examined by Captain McClintock and Lieutenant Hobson, no vestige of the wrecks was seen, and it was doubted whether any portion of them remained above water.

After making the explorations above mentioned, the object of the expedition having been measurably attained, the explorers in the Fox waited for the advance

of the season to be released from the ice, but though the summer at Port Kennedy was a warm one, they were not able to move before the 9th of August. At this time they commenced their homeward voyage and arrived at Portsmouth on the 23d of September following.

During the whole time of the exploration of "the Fox," a regular series of observations was made upon the temperature, the pressure and movements of the atmosphere, as well as upon the variations of the elements of terrestrial magnetism, the tides, &c.

The meteorological observations were under the care of Dr. David Walker, of Belfast, and were made at equal intervals of time during day and night. In winter they were generally taken at intervals of two hours; and in summer of four hours. Occasionally, there are found some irregularities in the time of observation, and omissions noted in the records, but these are of rare occurrence, and are corrected approximately in the reductions.

The reductions have been made at the expense of the Smithsonian Institution, by Mr. Schott, whose previous labors in the reduction of the observations of Dr. Kane have met with general approval.

The series of observations is divided into three parts, relating to the following subjects, namely:—

1. The temperature.
2. The direction and force of the winds.
3. The pressure of the atmosphere.

To these are added, in an appendix, miscellaneous phenomena, such as the face of the sky, appearance of plants and animals, auroras, &c.

The following remarks relative to the observations are from communications addressed by Captain M'Clintock to the Secretary of the Smithsonian Institution:—

"I have much pleasure in transmitting to you the meteorological records of my whole voyage in the Fox. I have had my two-hourly observations for the temperature and pressure of the air reduced according to the method adopted in Kane's observations, but they have not been published in any book, nor do I think they will be, the time required and the expense being an objection. Admiral Fitzroy has published in the fourth number of the Meteorological Papers of the Board of Trade a part of my observations [the temperature for noon, the face of the sky, and the specific gravity of sea water, &c., without reduction], which I fear will not be sufficient for your purpose. You are at full liberty to make any use you may think fit of the observations, and should you deem them worthy of publication, it would afford me much pleasure."

"I think it better to send the whole record than to make extracts which would increase the chance of error and perhaps not be sufficient after all. You will thus be able to trace my drift down Baffin's Bay and Davis' Straits and to compare it with De Haven's drift.

"My magnetical observations are in the hands of General Sabine. In the

appendix of the second edition of my narrative, now published, you will see an article on the Tides, as also one upon the Geology, by Professor Haughton. Observations upon Halos, &c., with the Polariscopes, have been sent to Professor Stokes; a series of earth temperatures, to Dr. Jos. Hooker, of Kew Botanic Gardens, as also the specimens of dried and living plants. Natural history specimens have also been made over to scientific friends of the Expedition, my sole object being, to render our labors subservient to scientific ends, and with the least possible delay."

"I quite agree with Kane's remarks as to the increase of cold during full moon. The fact was noticed as far back as 1829-30, by Sir John Ross, in the Victory.

"I also agree with you in opinion that the apparent quantity of ozone depends upon the velocity of the air which has free access to the box containing the prepared paper."

"I likewise think that when you have fully examined my data now in your possession you will in a great measure subscribe to my opinion as to the ice-movement [as connected with the wind]. I referred in my letter only to the winter movements of the ice when there is no discharge of water whatever from the land, and when the precipitation in the northern regions is reduced to its minimum. The Barrow Strait stream is almost lost in the vast expanse of Baffin's Bay, but its line is tolerably well indicated by De Haven's drift. The entire current which brings such quantities of ice round Cape Farewell, and up to about 65° N., appears to be deflected off shore to the westward by banks which lie in about the latitude of 67° . It sweeps very swiftly past Cape Walsingham, curves southward, and having united with Barrow Strait current continues its course downward along the Labrador coast; so that the Labrador current is not due, in my opinion, so much to water flowing from the upper part of Baffin's Bay as to the Arctic current which sets around Cape Farewell from the East."

"The long drift of the Terror through Hudson's Straits in 1836-37 appears to me to be another instance of the effect of wind upon the ice, as in this case it does not seem possible that any considerable current could always, that is to say all winter, set out of Hudson's Bay. But it is my anxious endeavor to bring to light facts instead of advancing hypotheses, and I do know from repeated observations in the Fox, in 1837, and in H. M. S. Bulldog during the past summer, that the Arctic currents [from around Cape Farewell] flow northward along the coast of Greenland—off Fredericksnaab, for instance, at from eighteen to twenty-four miles daily, and that West India seeds have been borne by it as far north as Egedesminde, which is in about 68° of north latitude. Our observations, therefore, upon the volume of water setting out of Baffin's Bay (on the west side) should not be extended south of this point without making considerable allowance for the current which flows around Cape Farewell, and northward up the coast."

In one of his communications, Captain McClintock states that the beams of the aurora were most frequently seen in the direction of open water, or else in that of places where vapor was rising. In some cases, patches of light could be plainly seen a few feet above a small mass of vapor over an opening in the ice. This observation is in accordance with a deduction from an examination of a large number

of notices of the aurora in the voyages of Arctic explorations by Peter Force, Esq., of Washington; published in Vol. VIII. of Smithsonian Contributions (in 1856), namely, "that on the Atlantic Ocean, and other open water, the aurora is most frequent and most brilliant." These facts would appear to favor the hypothesis that auroral displays are due to electrical discharges between the air and the earth, since such discharges would, at least in part, be interrupted by a stratum of non-conducting ice.

The accompanying map, to illustrate the voyage of the Fox, is drawn by Mr. Schott on the plan of the projection known as the polyconic, which is a development of the earth's surface on cones tangent to each parallel of latitude; the radius being the distance between the arc of the parallel and the earth's axis.

Points of intersection of the parallels and the meridians are, according to Mr. Schott, readily computed by substitution in the following formulae, in which x and y are the co-ordinates for any difference of longitude, n , on any parallel of latitude, L , and N the normal ending at the polar axis.

$$x = N \cos L (n - \frac{n^3}{6} \sin^2 L + \dots)$$

$$y = N \cos L (\frac{n^2}{2} \sin L - \frac{n^4}{24} \sin^3 L + \dots)$$

This projection is used in the United States Coast Survey, and is described in the Report of the Superintendent, Dr. Baché, for 1859, Appendix, 33.

JOSEPH HENRY,

Secretary S. I.

SMITHSONIAN INSTITUTION,
WASHINGTON, December, 1862.

PART I.

TEMPERATURES.

MERCURIAL THERMOMETERS.					
CORRECTIONS AT					
	42°	62°	82°		
Negretti, A 499,	-0.1	-0.1	-0.2	} At departure.	Compared at Kew, Feb. 1857.
" 500,	0.0	-0.2	-0.3		
" 501,	-0.1	-0.2	-0.3		
" 502,	-0.1	-0.2	+0.1		
" 503,	-0.1	-0.3	-0.3		
" 504,	0.0	-0.2	-0.3		
Negretti, A 500,	-0.3	-0.3	-0.4	} At return.	Compared at Kew Observatory.
" 501,	-0.1	-0.4	-0.4		
" 502,	-0.4	-0.4	-0.1		
" 503,	-0.4	-0.5	-0.4		
" 504,	-0.2	-0.2	-0.4		

The corrections in regard to the barometer are explained in the third part of the series, on page 79.

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX.
(Expressed in degrees of Fahrenheit's scale.)

July, 1857.

Day of the month.	Latitude north.	Longitude west of Greenwich.	4°	5°	Noon.	4°	5°	Miles.	Mean.	Reduced mean.
1	Aberdeen		..	..	..	..	..	..	..	..
2	56° 19'	2° 35'	..	..	..	..	..	..	..	57.5°
3	56 56	4 18	..	57°	..	..	57.8	..	..	57.7
4	56 45	7 19	..	54	..	..	49	..	..	55.0
5	56 19	13 49	..	49.5	..	..	53	..	..	51.7
6	56 1	19 1	..	53.5	59°	59°	59.5	58°	..	56.1
7	56 9	15 43	54°	58	51	57	57	57	56.0°	..
8	56 36	19 20	59	55	59	55	59	55	57.9	..
9	56 17	25 40	55	59	57	57	55	51	56.0	..
10	56 19	28 59	53	53	55	54	54	54	55.7	..
11	56 8	32 49	53	54	59	53	52	51	55.2	..
12	56 37	38 44	50	50	50.5	50	48	47	48.3	..
13	56 19	41 38	46	48	46	46	44	46	46.3	..
14	56 34	44 45	44	46	44	47.5	44	44	45.5	..
15	56 9	48 19	44	43	41.5	43	41.5	41	42.3	..
16	56 34	49 40	43	41	43	44	39	41	41.8	..
17	56 22	50 36	35	36	37	34	33	33	35.0	..
18	56 57	50 11	23	32	34	35.5	37	36	34.4	..
19	Frederickshavn		40	..	..	..	..	..	..	40.5
20	..	..	44	40	41	40	41	36	40.3	..
21	..	..	35	41	43	43	..	51	..	38.5
22	52 36	51 8	34	35	59	56	57	37	55.5	..
23	Fiskerø		35	41	42	54	49	45	44.8	..
24	53 30	52 10	43	40	41	41	50	40	40.8	..
25	..	..	38	38	40	41	41	38	38.5	..
26	54 7	53 19	39	41	41	41	39	40	40.2	..
27	54 34	59 0	40	36	40	39	36	34	36.9	..
28	53 1	55 20	36	37	36	39.5	40	39	38.4	..
29	57 25	55 30	39	39	38	43	39	38	38.2	..
30	58 29	56 12	38	42	42	41.5	40	41	40.5	..
31	Lively		44	45	45	45	43	43	44.0	..
Mean	52.0	30.1	+44.75	+45.34	+46.46	+47.34	+48.36	+44.24	+45.09	

Correction to refer to mean from 24 observations in a day = -0°.08.

August, 1857.

Day of the month.	Latitude north.	Longitude west of Greenwich.	4°	5°	Noon.	4°	5°	Miles.	Mean.
1	In Disco Fjord		42°	45°	44°	44°	44°	43°	+43.7
2	59° 7'	52° 58'	45	44	45	46	45	45	45.0
3	Of Isung Point		43	44	45	46	48	41	46.2
4	At Rutenbank		51	50	51	47	40	39	46.3
5	71 7	55 25	38	39	41	43	40	40	40.2
6	Of Upernivik		41	..	..	44	40	37	41.2
7	72 42	55 1	54	53	53	54	54	51	53.3
8	73 54	56 47	29	30	34	35	37.5	40	34.2
9	73 19	56 43	38	35.5	55	54	54	54	54.7
10	74 29	58 38	36	35	39	35.5	33	53	34.1
11	74 45	56 56	52	53	53	56	54	53	53.8
12	75 9	59 20	28	30	34	36	36	33	32.9
13	75 11	56 4	22.5	35	46	37	37	32	36.9
14	75 6	58 11	54	34	36.5	37	38	33	35.4
15	75 9	59 11	33	35	59	54	54	54	54.9
16	75 7	59 29	31	54	56	56.5	52	51	53.4
17	75 10	51 19	31	51	51	53.5	52	51	51.9
18	75 17	52 8	22	30	35	35	52	50	31.5
19	75 15	52 19	25.5	30	34	31.5	37	37	38.5
20	75 17	..	27.5	29	30	21	29	28	28.1
21	75 17	52 16	28	29	52	55	53	53	51.5
22	75 22	52 41	30	31.5	35	38.5	32	29	32.2
23	75 22	52 41	30	31	35.5	35	33	27	51.2
24	75 20	53 8	25	27	30	31	37	36	27.7
25	..	..	23	26	34	35	54	54	51.8
26	75 23	55 12	39	32	31.5	32.5	51.5	52.5	52.2
27	75 24	53 15	34	35	37	36	55	54	55.0
28	..	..	34.5	36	34	35	54	53	54.2
29	75 26	53 59	31	39	33	33	28	26	30.0
30	..	..	34	27	32.5	53	54	34	30.7
31	75 30	54 4	52	32.5	54	22	25	25	30.8
Mean	74.0	59.8	+38.16	+38.59	+36.59	+36.32	+34.74	+33.91	+34.68

Correction to refer mean of 9 observations to mean of 24 observations, 0°.00.

RECORD AND REDUCTION

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX.
(Expressed in degrees of Fahrenheit's scale.)

September, 1857.

Day of the month.	Lat. north.	Long. west of Green.	2°	4°	6°	8°	10°	Noon.	2°	4°	6°	8°	10°	Miles.	Mean of 6 obs.	Mean of 12 obs.
1	75°26'	...	22°	...	23°	...	25°	...	23°	...	20°	...	29	...	+27.6	+27.5
2	...	...	21	...	24	...	25	...	32	...	30	...	29	...	32.7	32.5
3	...	...	24	...	25	...	30	...	32	...	30	...	29	...	30.2	29.1
4	...	...	27.5	...	28	...	29.5	...	26	...	26	...	25	...	27.0	26.8
5	75 27 44 21	...	28	...	29	...	31	...	31	...	31	...	30	...	30.0	29.9
6	75 28 04 31	...	29	...	30	...	32	...	27.5	...	26	...	28	...	27.1	26.8
7	75 24 44 22	...	29	...	24.5	...	26.5	...	25	...	27.5	...	25	...	26.9	26.8
8	...	...	27	...	26.5	...	30	...	32	...	29	...	28	...	28.8	28.6
9	...	...	28.5	...	32	...	33	...	33	...	33	...	33	...	32.1	32.0
10	...	...	32	...	34	...	33.5	...	35	...	31.5	...	30	...	32.7	32.5
11	...	...	30	...	30.5	...	34	...	34	...	34	...	31	...	32.1	32.0
12	75 31	...	23	...	23	...	22	...	21	...	19	...	18.5	...	20.2	20.0
13	75 32 65 02	...	17	...	7	...	17	...	19	...	18	...	18	...	15.2	15.2
14	...	...	20	...	24	...	31	...	28	...	19	...	9	...	21.5	21.1
15	75 32 81 02	...	8	...	16.5	...	10.5	...	19	...	15	...	9	...	16.7	15.6
16	...	...	8	...	16.5	...	22	...	22.5	...	17.5	...	11	...	16.4	16.2
17	75 32 69 1	...	3.5	...	3	...	10	...	16	...	12	...	-2	...	7.1	7.0
18	75 30 65 30	...	4	...	8	...	7	...	14	...	13.5	...	11.5	...	5.7	5.5
19	75 32 69 32	...	30.5	...	5.5	...	15.5	...	17	...	17	...	19	...	15.6	15.6
20	75 21 65 24	...	5	...	6	...	12	...	16	...	10.5	...	10.5	...	10.2	10.0
21	75 17 65 21	...	13.5	...	17	...	23.5	27°	26.9	23°	21	21°	21	...	20.5	20.5
22	75 16 65 18	23° 0	23	23°	21.5	17°	17	17	16.5	16	16	17.5	18	...	18.9	18.9
23	75 16 65 5	17	17	13	19	15.5	17	16	17	8	5.5	5	5	...	13.4	13.2
24	75 8 65 20	9	9	9	8.5	10.5	10	12	13	6	6	8	4	...	6.1	5.9
25	75 8 65 20	9	9	6	9	12	14.5	16	19	10.5	8	9	9	...	6.4	5.6
26	75 4 65 23	3	9	9	7.5	11.5	12	13	14	11	8.5	9	9	...	6.3	5.1
27	75 1	...	8.5	12	14	14	15.5	20	20.5	21	19	16	15	...	15.5	14.8
28	...	...	13	10.5	15	15.5	15	15.5	15	15.5	18	19	18	...	15.7	15.6
29	75 1	...	19	16	19	19	20	20.5	19	14.5	12	11	11	...	15.5	15.9
30	...	...	12	12	11	19	16	19.5	19.5	16	19	19	15	12	15.1	15.1

Mean 75.3 75.9 +17.15 +17.23 +16.79 +16.78 +20.45 +22.07 +23.16 +23.10 +20.19 +19.63 +15.63 +17.30 ... +16.54

Correction to refer to mean of 24 observations = -0°.04.

October, 1857.

Day of the month.	Lat. north.	Long. west of Green.	2°	4°	6°	8°	10°	Noon.	2°	4°	6°	8°	10°	Miles.	Mean.
1	...	...	+0°	+5°	+2°	+3.5	+6°	+13°	+18°	+16°	+18.5	+20°	+20.5	+21°	+12.5
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+15.4
3	74° 56'	65° 52'	19	17.5	17.5	20	22	23	19	11.9	9	12	7	...	4
4	74 56	...	5.5	8	8	11	15.5	17	19.5	19	19	12	12	...	6.9
5	74 54	...	8.5	7.5	7	11	14	12	13	9	3	1	1	...	7.3
6	74 52	65 45	-2	-1	10	14	16	17	15.9	14.9	13	8.9	1	...	+8.0
7	74 52	65 42	-5	-6	-6	-3.5	-3.5	0	3	4	1	3	1	...	1.5
8	...	...	2	2	2	1	4	3.9	4.5	4	5.9	8	5	...	2.5
9	...	...	-3.5	-3	8	12	13	14	14	12.5	10	10.5	6	...	+7.7
10	...	...	-3	-3	-3	2	9	0	-1.5	-1.5	-3.5	7	-4	...	-2.0
11	...	...	-1	-1	-2	-3	-3.5	0	-2	-1	-1	-3	0	...	-1.1
12	74 52	...	6	6	6	6	14	15.5	15.5	11.5	15.5	13	2	...	+10.5
13	...	...	6	7	9	9	8.5	10	10.5	14.5	13	2	2	...	26.5
14	...	...	20	29	28.5	30	32	32	29	26	21	23	24	...	26
15	...	...	27	29	29.5	30	30.5	31	30	27	23	25	24	...	24
16	...	...	28	28	28	29.5	29	28	27	26.5	26	26	27	...	27
17	75 16 69 39	...	12	6	7	11	13	11	15	18.5	19	16	16	...	20
18	...	...	21	21.5	19	17	14	13	12	12	12	11	11	...	11
19	75 16 69 30	...	12	11	9	7.5	6.5	7	7	5.5	5	6.5	8	...	9
20	...	...	9	7	9	9	10.5	10.5	11	10.5	10	11	10.5	...	11
21	75 30 69 34	...	10	10	12	11.5	11	8.5	6	9	11.9	19	19	...	19
22	...	...	12	11	9	8.5	2	1.5	4.5	4	4	4	2	...	1
23	...	...	-3	-3	-4	-4	-5	-6	-5.9	-11	-11	-11	-11	...	-5
24	...	...	-3	-3	-3	-3	-4	-5	-5.5	-5.5	-5.5	-5.5	-10	...	-11.5
25	...	...	-3	-3	-3	-3	-4	-5	-5.5	-5.5	-5.5	-5.5	-10	...	-10
26	75 27 68 41	...	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	...	-7
27	...	...	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	...	-7
28	75 22	...	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	...	-7
29	75 21	...	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	...	-10
30	75 13 65 40	...	-10	-11	-10	-10	-10	-10	-10	-10	-10	-10	-10	...	-10
31	...	...	-11.5	-9	-7	-6	-5.5	-4	-4	-4	-6	-6.5	-5	...	-6.5

Mean 7.22 67.9 +4.37 +4.21 +5.29 +6.29 +6.95 +7.30 +7.35 +6.59 +5.68 +6.29 +6.61 +4.31 +8.71

Correction to refer mean of 12 to mean of 24 observations in a day = +0°.02.

OBSERVATIONS FOR TEMPERATURE.

3

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX.
(Expressed in degrees of Fahrenheit's scale.)

November, 1857.

Day of the month.	Lat. north.	Long. west of Green.	2°	4°	6°	8°	10°	Mean.	2°	4°	6°	8°	10°	Mean.	Mean.
1	79° 15'	69° 50'	-4°	-7°	-10°	-10°	-8°	-4°	-1°	+2°	-3°	-3°	-5°	-4°	-4.5
2	79 10	69 30	-4.5	-8	-11	-11.5	-7.5	-10.5	-5	-4	+5.5	+1	-1.9	-6.4	-6.4
3	79 10	69 30	-4.5	-8	-11	-11.5	-7.5	-10.5	-5	-4	+5.5	+1	-1.9	-6.4	-6.4
4	79 10	69 30	-4.5	-8	-11	-11.5	-7.5	-10.5	-5	-4	+5.5	+1	-1.9	-6.4	-6.4
5	79 10	69 30	-4.5	-8	-11	-11.5	-7.5	-10.5	-5	-4	+5.5	+1	-1.9	-6.4	-6.4
6	79 10	69 30	-4.5	-8	-11	-11.5	-7.5	-10.5	-5	-4	+5.5	+1	-1.9	-6.4	-6.4
7	74 57	69 30	-3	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
8	74 57	69 30	-3	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
9	74 57	69 30	-3	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
10	74 57	69 30	-3	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
11	74 57	69 30	-3	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
12	74 34	69 30	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
13	74 34	69 30	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
14	74 34	69 30	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
15	74 34	69 30	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
16	74 34	69 30	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
17	74 34	69 30	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
18	74 34	69 30	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
19	74 34	69 30	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
20	74 34	69 30	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
21	74 47	69 30	-5	-3	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
22	74 47	69 30	-5	-3	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
23	74 47	69 30	-5	-3	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
24	79 20	70 23	-15	-13	-11	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10
25	79 20	70 23	-15	-13	-11	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10
26	79 20	70 23	-15	-13	-11	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10
27	79 20	70 23	-15	-13	-11	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10
28	74 46	69 36	-17	-15	-13	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12
29	74 46	69 36	-17	-15	-13	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12
30	74 46	69 36	-17	-15	-13	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12
31	74 46	69 36	-17	-15	-13	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12
Mean	74.8	69.1	-4.53	-4.56	-4.58	-4.59	-4.53	-4.43	-4.42	-4.36	-4.32	-3.90	-5.17	-6.07	-4.88

Correction to refer the mean of 12 to the mean of 24 readings = +0°.12.

December, 1857.

Day of the month.	Lat. north.	Long. west of Green.	2°	4°	6°	8°	10°	Mean.	2°	4°	6°	8°	10°	Mean.	Mean.
1	74° 41'	69° 10'	-32°	-31° 5'	-31°	-31°	-31°	-31°	-31°	-31°	-31°	-31°	-31°	-31°	-31.4
2	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
3	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
4	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
5	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
6	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
7	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
8	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
9	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
10	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
11	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
12	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
13	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
14	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
15	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
16	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
17	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
18	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
19	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
20	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
21	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
22	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
23	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
24	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
25	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
26	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
27	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
28	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
29	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
30	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
31	74 41	69 10	-32	-31.5	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31	-31.4
Mean	74.3	67.4	-32.00	-32.25	-31.47	-31.10	-31.00	-31.21	-31.46	-31.45	-31.44	-31.14	-31.56	-32.94	-31.55

Correction to refer mean of 12 to mean of 24 observations = 0°.00.

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX.
(Expressed in degrees of Fahrenheit's scale.)

January, 1868.

Day of the month.	Lat. north.	Long. west of Green.	2 ^d	4 th	6 th	8 th	10 th	Noon.	2 ^d	4 th	6 th	8 th	10 th	Miles.	Mean.
1	---	---	-36°	-36°	-35° 5	-36°	-35°	-33° 5	-35°	-33°	-32°	-31° 5	-30°	-29°	-32° 5
2	---	---	29	28	27	28	28	27	29	29	30	31	31	21	-28.0
3	---	---	28	28.5	27	24	23	21.5	20	23.5	23	23.5	24.5	25	-24.0
4	72° 45'	69° 41'	25	25	22	17	15	15	14.5	14	15	11	5.5	5	-18.5
5	---	---	5	5.5	10	10	9	10	10	10	12	21	22.5	23	-13.1
6	---	---	21.5	23	20	19	18	17.5	17	17	14.5	16	16	16	-16.0
7	---	---	18.5	16	18.5	18.5	16	18	16.5	14	16	18	18.5	18	-15.5
8	---	---	17	17.5	16	16	18	17	16	18.5	18.5	16	16	18.5	-17.5
9	---	---	16.5	16	19	20	20	19	20	23	24.5	24	24	25	-21.1
10	73 30	64 0	26	26	24	25	24	23	23	22	22	21	20	20	-23.3
11	---	---	19	18.5	18	18	18	18	21	21	21	24.5	24	26	-20.5
12	73 24	63 54	27	28	27	25	23.5	22	23	26	27.5	28	28	26.5	-25.7
13	---	---	28	27.5	27	25	24	23	26	28	28.5	30	30	31	-27.7
14	---	---	31	32.5	33	35	36	34	34	33	27.5	22	20	20	-30.0
16	---	---	17	17	15.5	14	12	9.5	8	8	6	11.5	13	14	-12.4
18	---	---	14	13	12	12	11	12	14	15	16	17.5	17	17	-14.3
17	---	---	15	16	19	21	16	22	25	27	29	31	31	28	-24.3
18	73 5	62 25	34	35	35.5	35.5	36	34	36	37	36	35	36	36	-30.7
19	---	---	34	27	27.5	28.5	33	34	34	33	23	24	18	18	-30.1
20	---	---	5	5	9	9	9	8.5	9.5	12	12	12	11	11	-10.0
21	---	---	15	15	14	16.5	18	16	16	16.5	17	17.5	18	18	-16.0
22	---	---	16.5	19.5	20	25	27	30.5	31	30	29	28	28	29	-25.4
23	73 1	63 55	29	28	28	29	30.5	33	33	36	34	36.5	37.5	38	-22.1
24	---	---	36	36	35	35	35	36	33	33	28	26	24	22.5	-31.5
25	---	---	22	22	22	23	21	22	24	26	27	27	28	28	-24.5
26	72 48	62 36	24.5	24.5	24	24	24	24	26	24	26	26	26	27	-26.5
27	---	---	25	25	24	23.5	26	28	31	31	33	34	35.5	35.5	-29.4
28	---	---	37	37	36	38.5	39	38	35	37.5	39.5	40	40.5	43.5	-28.4
29	---	---	39	39	39	36	41	41	45	43	45	46	43	43	-41.5
30	---	---	43	43	40	27	26.5	34	34.5	35	35.5	35	33	33	-32.3
31	---	---	33	34	34	34.5	31.5	28	28	24	23	23	23	31.5	-28.3
Mean	73.2	63.7	-25.01	-25.07	-24.92	-24.72	-24.39	-24.15	-24.53	-25.06	-24.67	-25.21	-25.06	-25.00	-24.14

Correction to refer mean of 12 to mean of 24 readings = -0°.03.

February, 1868.

Day of the month.	Lat. north.	Long. west of Green.	2 ^d	4 th	6 th	8 th	10 th	Noon.	2 ^d	4 th	6 th	8 th	10 th	Miles.	Mean.
1	---	---	-22°	-22°	-22°	-19°	-15°	-16°	-21° 5	-21°	-22°	-22°	-20°	-21° 0	
2	72° 28'	61° 10'	20.5	20	17	16	11	10	11	5	13	16	17	19	-14.4
3	---	---	21.5	22	21.5	22.5	23	22.5	24	25	29	30	31	32	-22.4
4	73 26	61 10	20	21	22	23	25.5	28	26	27	28	29	29	29	-25.7
5	---	---	30	30	29	27	26	25	25	24	24	21	20	20	-25.1
6	---	---	21	18	19	18	16.5	15	15.5	15	14	15	17	23	-17.3
7	---	---	21	20	21	21	24	24	25	26	24	25.5	25	25	-20.5
8	72 22	61 36	39	34	36	37	39	39.5	38.5	38	37	37	37	37	-27.0
9	---	---	34	34	33	32	32.5	30	28.5	27.5	26	24	23	23	-28.5
10	---	---	34	33	31	18	16	15	12	11	10	10	8	5	-14.5
11	---	---	5	7	4.5	5	10.5	11	11.5	15	15	14	12	10	-10.0
12	---	---	5	5.5	7.5	5	5.5	7	12	16	17	17	16	16	-11.5
13	71 59	60 36	15	15	17	15	15	14	10	6	10.5	7	7.5	8	-11.5
14	---	---	5	5	5	7	7	8	5	5	5	5	7	7.5	-5.5
15	71 58	61 31	27.5	10	10	10.5	6.5	5.5	11	11	12	12	11	10	-10.5
16	71 28	---	11	10	5	5.5	5	5	5	5	5	10	11	10	-5.4
17	71 15	60 46	11	11	12	12	12	13	12	12	15	12	12	12	-12.1
18	71 8	---	12	12	12	11	10	5.5	6	10	10	11	11	10	-10.5
19	71 5	60 48	7	7	8	5	3	1	1.5	3	4	5	5	5	-5.3
20	---	---	14	15	10	7	5.5	5.5	1	1	3	3	4	3	-8.5
21	---	---	5	5	8	7	8	7.5	13	16	18	16	15	15	-10.5
22	---	---	16	16.5	18.5	17	17	13	13	15	15	15	14	14	-15.2
23	70 56	60 58	15	15	16	18	14.5	13	13	14.5	15	16	16	16	-15.0
24	---	---	16	15	15	19	12	12	12.5	12	12	13	13	11	-13.5
25	---	---	14	14	18	15	15	15	15	15	15	15	16	16	-14.5
26	---	---	15	16	16	16.5	15	12	6	7	10	16	12	15	-13.5
27	---	---	23.5	26	26	25	22	16	14	8.5	8.5	6	18	5	-19.7
28	69 50	55 43	5	5	5	5.5	+10	+11	+7.5	5	2	0	2	0.5	+4.0
Mean	71.5	60.5	-16.56	-16.14	-15.98	-15.56	-15.14	-14.11	-13.95	-14.69	-15.43	-15.04	-15.43	-15.79	-15.61

Correction to refer mean of 12 to mean of 24 observations = -0°.03.

OF OBSERVATIONS FOR TEMPERATURE.

5

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX.
(Expressed in degrees of Fahrenheit's scale.)

March, 1856.

Day of the month.	Lat. north.	Long. west of Greenwich.	2°	4°	6°	8°	10°	Mean.	2°	4°	6°	8°	10°	Mean.	Mean of 12 observations.
1	...	...	-2°	-2°	+2°	+5°	+5°	+5°	+5°	+12°	+12°	+12°	+12°	+12°	+7°
2	...	...	+3°	+3°	+3°	+3°	+3°	+3°	+3°	+3°	+3°	+3°	+3°	+3°	+1°
3	...	...	-7°	-7°	-11°	-4°	-4°	-4°	-4°	-4°	-4°	-4°	-4°	-4°	-8°
4	...	...	+12°	+7°	+4°	+1°	+1°	0°	2°	-8°	-7°	-8°	-11°	-13°	-1°
5	70° 4'	50° 28'	-12°	-12°	-10°	-12°	-12°	-10°	-8°	-9°	-12°	-18°	-18°	-22°	-15°
6	70 1	...	-21°	-25°	-25°	-23°	-18°	-18°	-14°	-15°	-18°	-22°	-23°	-25°	-20°
7	69 58	50 11	-25°	-26°	-25°	-22°	-20°	-16°	-18°	-18°	-18°	-18°	-18°	-16°	-20°
8	69 58	...	-16°	-18°	-18°	-15°	-16°	-14°	-12°	-11°	-17°	-20°	-18°	-17°	-16°
9	...	...	-17°	-17°	-15°	-12°	-6°	-2°	+2°	+2°	-1°	+1°	+4°	+4°	-4°
10	69 41	...	+4°	+2°	+3°	+18°	+25°	+25°	+22°	+20°	+20°	+20°	+20°	+26°	+17°
11	...	...	+25°	+25°	+30°	+20°	+31°	+32°	+30°	+24°	+30°	+17°	+17°	+26°	+1°
12	...	...	+19°	+22°	+15°	+20°	+26°	+31°	+27°	+18°	+15°	+11°	+11°	+18°	+8°
13	...	...	+10°	+11°	+11°	+11°	+10°	+13°	+10°	+12°	+2°	-6°	-8°	+10°	+8°
14	69 58	50 8	-8°	-8°	-7°	-7°	-6°	-4°	-4°	-13°	-14°	-14°	-14°	-17°	-8°
15	...	...	-20°	-20°	-18°	-16°	-14°	-15°	-14°	-16°	-18°	-18°	-18°	-17°	-14°
16	69 58	50 14	-20°	-20°	-16°	-16°	-14°	-12°	-10°	-11°	-11°	-11°	-11°	-11°	-14°
17	69 31	...	-41°	-40°	-6°	-8°	-8°	-6°	-3°	-8°	-3°	-10°	-11°	-13°	-8°
18	69 28	50 58	-43°	-42°	-12°	-12°	-12°	-7°	-6°	-3°	-8°	-8°	-8°	-7°	-7°
19	69 20	...	-9°	-8°	-8°	-8°	-8°	-4°	-2°	-2°	-5°	-5°	-10°	-3°	-6°
20	69 14	50 43	-4°	-5°	-6°	-4°	-4°	+1°	+3°	+3°	0°	-2°	-6°	-11°	-3°
21	69 14	...	-11°	-11°	-10°	-10°	-4°	-3°	-1°	-3°	-8°	-2°	0°	0°	-4°
22	...	...	+1°	+2°	+4°	+6°	+8°	+13°	+14°	+14°	+17°	+18°	+22°	+25°	+12°
23	...	...	+25°	+24°	+29°	+29°	+26°	+30°	+30°	+18°	+11°	+8°	+5°	+8°	+18°
24	...	...	+7°	+7°	+8°	+8°	+8°	+10°	+12°	+8°	+7°	+3°	+1°	+1°	+1°
25	69 18	50 50	+1°	+1°	+1°	+1°	+4°	+4°	+5°	+2°	+1°	+1°	0°	0°	+1°
26	69 50	...	-1°	-3°	-6°	-8°	-7°	-7°	-7°	-8°	-8°	-13°	-13°	-16°	-7°
27	68 44	50 37	-35°	-36°	-17°	-14°	-13°	-11°	-11°	-11°	-12°	-14°	-16°	-17°	-14°
28	68 34	...	-16°	-15°	-14°	-11°	-8°	-7°	-7°	-7°	-7°	-7°	-7°	-7°	-12°
29	68 27	50 29	-12°	-12°	-12°	-7°	-6°	-5°	-6°	-4°	-10°	-12°	-14°	-13°	-10°
30	68 25	50 31	-14°	-13°	-11°	-5°	+3°	+4°	+4°	-2°	-4°	-10°	-14°	-18°	-6°
31	68 30	...	-23°	-23°	-25°	-23°	-21°	-20°	-18°	-18°	-18°	-25°	-25°	-27°	-22°
Mean	69.4	50.1	-4.48	-4.03	-5.60	-5.44	-1.34	+0.47	+0.74	-0.13	-2.40	-4.79	-5.57	-6.01	-3.31

Correction to refer mean of 12 to mean of 24 observations = +0°.02.

April, 1856.

Day of the month.	Lat. north.	Long. west of Greenwich.	2°	4°	6°	8°	10°	Mean.	2°	4°	6°	8°	10°	Mean.	Mean of 12 observations.	Mean of 12 observations.
1	68° 17'	50° 10'	-26°	-26°	-28°	-13°	-8°	-7°	-4°	-8°	-8°	-17°	-17°	-17°	-14°	-14°
2	68 17	...	-19°	-20°	-18°	-12°	-10°	-5°	-6°	-8°	-12°	-18°	-18°	-18°	-13°	-13°
3	68 9	50 25	-15°	-15°	-15°	-10°	-6°	-7°	-8°	-9°	-11°	-12°	-14°	-14°	-11°	-11°
4	...	...	-15°	-15°	-15°	-14°	-13°	-11°	-8°	-8°	-10°	-11°	-11°	-12°	-12°	-12°
5	...	...	-12°	-12°	-11°	-6°	-4°	-1°	-1°	-4°	-7°	-8°	-9°	-10°	-8°	-7°
6	67 15	50 17	-8°	-9°	-8°	-4°	-3°	0°	+2°	+4°	-3°	-6°	-9°	-8°	-4°	-4°
7	...	...	-8°	-8°	-9°	+3°	+13°	+10°	+15°	+5°	+1°	+4°	+4°	+4°	+8°	+8°
8	...	...	+4°	+4°	+2°	+9°	+1°	+5°	+4°	-1°	-2°	-4°	-7°	-8°	0°	0°
9	68 03	50 31	-8°	-10°	-8°	-3°	0°	+1°	+1°	0°	-2°	-4°	-5°	-6°	-3°	-3°
10	68 45	50 20	-8°	-7°	-9°	-1°	+2°	+9°	+10°	+9°	+2°	+2°	-1°	-1°	+1°	+1°
11	68 40	...	-3°	-2°	-3°	+5°	+11°	+29°	+13°	+18°	+14°	+5°	+2°	+1°	+4°	+4°
12	68 53	50 8	0°	0°	1°	2°	2°	0°	1°	1°	8°	7°	0°	-10°	-6°	-6°
13	68 56	50 12	-10°	-10°	-5°	-3°	+1°	+8°	+8°	+10°	+8°	+8°	+1°	+1°	+0°	+0°
14	68 23	50 4	-5°	-3°	+1°	+8°	+10°	+12°	+12°	+11°	+8°	+4°	+1°	0°	+6°	+6°
15	68 17	50 56	+1°	+1°	+2°	+2°	+3°	+8°	+8°	+4°	+9°	+4°	+1°	0°	+2°	+2°
16	68 68	...	-1°	-1°	-1°	-4°	-3°	-5°	-5°	-14°	-16°	-9°	+8°	+6°	+7°	+7°
17	68 58	50 24	+7°	+2°	+7°	+9°	+14°	+13°	+16°	+16°	+16°	+14°	+14°	+14°	+13°	+12°
18	64 50	50 35	...	+11°	...	+11°	...	+18°	...	+18°	...	+17°	...	+18°	+18°	+16°
19	64 16	...	...	+15°	...	+15°	...	+16°	...	+16°	...	+19°	...	+19°	+19°	+13°
20	64 22	50 45	...	-15°	...	-15°	...	-19°	...	-19°	...	-19°	...	-19°	+12°	+12°
21	64 10	50 44	...	-13°	...	-13°	...	-17°	...	-17°	...	+8°	...	+7°	+12°	+12°
22	63 51	50 54	...	-5°	...	-5°	...	-15°	...	-15°	...	+13°	...	+7°	+7°	+7°
23	63 41	50 56	...	-3°	...	-12°	...	-3°	...	-21°	...	+12°	...	+10°	+14°	+14°
24	...	...	...	-17°	...	-28°	...	-29°	...	-33°	...	+30°	...	+30°	+27°	+27°
25	63 40	50 24	...	-20°	...	-20°	...	-34°	...	-31°	...	+22°	...	+22°	+28°	+28°
26	63 47	50 36	...	-23°	...	-26°	...	-30°	...	-28°	...	+25°	...	+24°	+26°	+26°
27	66 14	53 41	...	-28°	...	-25°	...	-29°	...	-30°	...	+26°	...	+23°	+26°	+26°
28	66 38	53 30	...	-26°	...	-25°	...	-29°	...	-28°	...	+26°	...	+25°	+26°	+26°
29	66 39	53 30	...	-27°	...	-27°	...	-29°	...	-28°	...	+25°	...	+25°	+24°	+24°
30	66 38	53 30	...	-27°	...	-27°	...	-31°	...	-30°	...	+34°	...	+34°	+33°	+33°
Mean	66.0	57.7	+2.00	+3.36	+4.13	+7.60	+10.14	+12.02	+13.37	+12.46	+10.80	+7.77	+6.14	+5.83	...	+3.04

Correction to refer mean of 12 to mean of 24 daily readings = +0°.02.

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOUL.
(Expressed in degrees of Fahrenheit's scale.)

May, 1858.

Day of the month.	Latitude north.	Longitude west of Greenwich.	4°	5°	Mean.	4°	5°	Mean.	Mean.
1	Helsingborg	33°	34°	34°	38°	37°	38°	+30°.3	31.5
2	"	"	27	"	34.5	31.5	30	31	28.1
3	"	"	24	24	34	29	34	31	25.5
4	"	"	24	25	37	28	26	27	26.7
5	"	27.5	27	31	20	20	14	15	20.4
6	"	"	14	16	11.5	18	16	10.5	14.3
7	"	"	12	16	19	23.5	17	13	16.5
8	"	"	13	15	29	16	14.5	13	16.5
9	67° 22'	53° 55'	13	13	18	17	17	17	15.3
10	68 10	53 55	15	16	31	31	19	15.3	20.3
11	Whalefish Islands	24	27	29	29	29	27.5	29	27.4
12	"	"	29	30	30	29	28	26	29.7
13	"	"	29	30	32	34	34	34	32.3
14	"	"	35	37	39	36.5	37.5	35	37.3
15	"	"	35	36	39	37	36	31	36.7
16	"	"	34	36	36	30	32	27	31.7
17	Upernivik Bay	37	39	36.5	30	32.5	30	29.7	29.7
18	"	29	33	42	46	35	31	35	35.5
19	"	30	31	35	36	34	30	30	33.7
20	"	30	33	39	40	34	30	30	34.3
21	"	36	40	41	40	36	32	32	35.3
22	"	33	34	36	36	36	34	34	35.5
23	"	30	34	37	44	36	26	26	35.5
24	Godhavn	30	34	39	41	41	31	31	36.0
25	"	32	35	43	36.5	34	33	33	35.4
26	Off the coal seam	32	33	25	36	35	35	35	34.6
27	70° 2	53 50	34	37	44	36	37	34	37.0
28	70 32	54 5	35	36	36	42	35	34	36.8
29	71 16	55 27	34	33	32.5	33	33	33	33.6
30	72 1	55 40	35	50	33	31	32	32	32.0
31	Off Upernivik	33	23	36	37	27	22	22	34.7
Mean	68.7	53.7	+37.50	+39.55	+38.28	+32.10	+30.05	+30.05	+37.75

Correction to refer the mean of 6 to the mean of 24 observations = -0°.07.

June, 1858.

Day of the month.	Latitude north.	Longitude west of Greenwich.	4°	5°	Mean.	4°	5°	Mean.	Mean.
1	Off Upernivik		38°	56°	42°.5	42°	41°	39°	+40°.3
2			36	44	40	50	44	40	44.3
3			42.5	36	40	45	41	36	40.3
4	73° 7'	56°	37	36	37	40	38	33	36.7
5	73 14	56° 23'	52	33	33	40	23	34	34.3
6	73 27	56 20	36	34	40	40.5	44	36	36.5
7	73 35	56 42	41	30	41.5	44	44	36	40.5
8	73 31	57 5	34	38	36	43	39	37.3	36.7
9	73 54	57 5	36	39	40	41	38	37.5	36.5
10	73 55	57 46	34	34	36	42	36	31	35.3
11	74 3	58	36	35	36	39	39.5	34.4	34.4
12	74 4	58	38	30	35	33	33	24	31.0
13	74 10	58 4	29	33	26	35	31	23	23.0
14	74 14	58 14	36	38	38	35	34	32	32.0
15	74 17	59 4	30	35	37	37	30	24.0	24.0
16	73 17	61 0	33	33	35	33	25	24	33.7
17	73 29	60 19	34	35	40	38	36	31	36.5
18	73 55	62 1	35	36	44	38	36	36	36.5
19	73 32	61 50	36	36.5	37	40	35	31	26.6
20	73 34	62 7	30	32	34	34	34	30	32.3
21	73 27	62 3	30	33	35	36	34	32	34.0
22	73 27	62 23	36	36	38	34	33	33	34.5
23	73 26	62 37	34	34	36	35	34	35	35.3
24	73 50	63 27	34	27	26	36	36	36	36.3
25	73 55	65 33	38	38	36	36	37	36	36.0
26	73 55	65 10	35	34	36	34	33	33	34.0
27	73 53	67 50	33	36	36	34	33.5	32	34.3
28	73 34	67 13	36	36	39	34	33	31	34.3
29	73 56	67 26	32.5	34	37	39	35	30.5	34.7
Mean	74.5	60.1	+34.52	+35.52	+37.00	+36.05	+34.53	+33.50	+36.04

Correction to refer mean of 24 observations = -0°.07.

OF OBSERVATIONS FOR TEMPERATURE.

7

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX. (Expressed in degrees of Fahrenheit's scale.)

July, 1858.

Day of the month.	Latitude north.	Longitude west of Greenwich.	4 ^h	5 ^h	Noon.	4 ^h	5 ^h	Midn't.	Mean.
1	75° 55'	17° 28'	33°	36°	37°	41°	34°	33°	+35° 7
2	75 53	47 11	32	34	41	40	34	31	36.0
3	75 51	70 43	32.5	33	34	34	31.5	31	35.7
4	75 54	70 34	32	32	31	34	31.5	32	35.1
5	75 44	70 28	34	36	36	35	36	37	35.7
6	75 17	73 35	33	35	34	33	31	33	35.7
7	75 26	75 13	34	35	37	36	36	34	35.2
8	75 20	75 57	35	31.5	38	35	36	34	34.6
9	75 17	75 47	33	35	36	35	34	34	35.0
10	75 36	75 55	35	37	39	36	36	36	37.5
11	75 9	75 46	36	37	39	40	36	34	36.7
12	74 41	79 34	33	33	39	35	33	32	34.0
13	74 25	80 40	33	31	33.5	33	35	34	33.2
14	...	...	35	34	40	39	35	32	34.0
15	74 23	80 17	35	38	37	39	33	36	36.3
16	74 24	81 55	33	36	35.5	38	34	34	35.4
17	74 3	83 0	36	37	44	37	34	33	36.8
18	73 46	79 10	32	38	38	38	32	31	34.8
19	73 46	79 26	33	35	37	38	36	34	35.4
20	73 55	78 33	35	39.5	45	45	38	37	38.1
21	73 58	78 25	36	34	44	43	38	36	38.6
22	74 0	78 5	39	40	45	44	39.5	36	40.9
23	74 5	47 45	34	46	44	50	41	37	38.3
24	73 54	76 54	37	41	43	44	48	39	41.0
25	73 38	77 0	38	40	47.5	42	42	36	41.4
26	73 5	75 49	39	45	49	45	40	37	42.2
27	...	...	37	38	41	43	42	36	39.3
28	73 50	...	37	38	40	38	36	35	37.5
29	72 51	76 13	34	36	35	35	35	34	35.3
30	72 51	76 13	34	36	35	35	35	36	35.8
31	72 37	...	37	38	40	36	38	36	37.5
Mean	74.4	76.4	+34.57	+36.20	+39.15	+38.54	+36.14	+34.74	+36.01

Correction to refer mean of 5 to mean of 24 observations = -0°.01.

August, 1858.

Day of the month.	Latitude north.	Longitude west of Greenwich.	4 ^h	5 ^h	Noon.	4 ^h	5 ^h	Midn't.	Mean.
1	72° 47'	77° 9'	34°	37°	36°	40°	39°	33°	+36° 5
2	72 48	76 54	37	38	38	40	36	37	37.7
3	72 45	76 54	38	38	38.5	39	37	36	37.4
4	72 46	...	37	37	39.5	40	36	36	38.4
5	73 46	76 79	37	38	40	37	36	36	37.5
6	73 54	75 59	35	38	38	40	37	36	37.5
7	73 40	77 18	35	37	36	36	35	34	36.0
8	73 18	84 22	33	32	35	35	35	35	34.2
9	74 14	87 00	34	35	38	35	34	34	35.3
10	74 18	88 20	36	34	34	35	35	35	35.0
11	...	...	35	34	38	35	34	36	35.6
12	...	...	38	39	41	44	43	35	40.0
13	...	...	35	43	40	35	35	35	38.7
14	...	...	38	40	41	40	36	36	39.5
15	...	...	39	39	40	38	35	35	37.3
16	...	...	32	32	33	35	36	34	33.7
17	74 13	94 58	33	34	36	33	32	31.5	34.3
18	74 10	92 24	31.5	35	36	36	36	36	35.5
19	Port Leopold	...	34	33	33	32	33	32	35.0
20	73 41	81 85	33	32	33	33	33	33	32.7
21	73 00	84 9	32	35	33	34	33	31	32.8
22	In Depot Bay	...	33	31.5	34	35	32	33	32.9
23	In Beloit Straits	...	33	34	35	36	33	33	34.5
24	71 54	84 36	31	32	32	33	33	34	32.5
25	73 00	94 5	32	35	35	34	30	33	32.5
26	71 54	83 13	30.5	30	32	31	32	32	31.3
27	71 34	83 17	32	30	33	31	30	29*	31.7
28	71 50	93 13	30	28	30.5	30	29	30	29.5
29	Depot Bay	...	32	29	33	32	31	30	31.5
30	72 01	84 14	34.5	29	29	32	31	27	28.2
31	Port Kennedy	...	28	30	30	30	29	28	29.2
Mean	73.1	88.5	+33.86	+34.44	+35.40	+35.53	+34.55	+33.57	+34.53

The correction to refer mean of 5 to mean of 24 observations becomes zero for this month.

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX.
(Expressed in degrees of Fahrenheit's scale.)

September, 1858.

Day of the month.	Latitude north.	Longitude west of Greenwich.	4 ^a	5 ^a	Mean.	4 ^a	5 ^a	Mids'l.	Mean.
1	Head of Port Kennedy		28°	29°	32°	34°	32°	30°	+30°.5
2	"	"	21	30	30	29	28	26	27.0
3	"	"	25	30	29	29	28	27	27.5
4	"	"	30	30	30	29	27	26	28.7
5	"	"	24	23	27	29	30	29	27.0
6	"	"	25	27	30	32	34	30	29.3
7	Near Punamian Rock		26	37.5	37	37	36	37	36.7
8	"	"	36	35	36.3	34	31.5	34	34.6
9	71° 58'	15° 10'	33	29	28	29	29	26	29.0
10	71 58	16 10	27	30	28	32	31	29	30.3
11	Port Kennedy		32	30	27.5	31	28	28	30.0
12	72 01	14 14	25	26	27	29	27	25	26.5
13	72 01	14 14	20	23	28.3	27.5	29	26	25.5
14	72 01	14 14	21	19	26	28	26	25	24.3
15	72 01	14 14	23	23.5	24	25	24	20	23.4
16	72 01	14 14	23	22	28	25.3	25	23	24.3
17	72 01	14 14	25	27	25.5	26	28	26	27.3
18	Bellot Straits		29	28	29	26	23	16	25.3
19	"	"	16.5	17	20	23.3	23	29	20.5
20	"	"	28	21	20	25	32	27	23.7
21	"	"	29	31	22	31	30	27	30.0
22	"	"	18	18	18	18	16	28	16.3
23	"	"	31	32	32.3	33	28	12	27.5
24	"	"	11	8	11	14	14	12	11.5
25	"	"	13	15	15	16	17	15	16.3
26	"	"	13	19	19.3	18	16.5	15	17.5
27	71 58	"	15	16	17	16	12	21	16.0
28	Port Kennedy		28	25.5	26	29	27	27	25.5
29	"	"	21	25	29	29	29	21	22.5
30	"	"	21	23	28	26	25	25	24.3
Mean	72.0	14.4	+34.35	+34.68	+36.45	+32.83	+35.63	+34.73	+35.43

Correction to refer mean of 5 to mean of 24 readings = zero.

October, 1858.

Day of the month.	Latitude north.	Longitude west of Greenwich.	4 ^a	5 ^a	Mean.	4 ^a	5 ^a	Mids'l.	Mean.
1	Port Kennedy		25°	26°	29.5	25°	29°	25°	+25°.4
2	72° 01'	14° 14'	27	28	28.5	21	27	25	+25.1
3	Winter Quarters		27	28	28	22	23	20	+25.8
4	"	"	24	25	23	21	20	21	+23.3
5	"	"	22	23	28	24	23	21	+22.6
6	"	"	20	21	27	25	21	16	+23.2
7	"	"	12	14.5	14	14	13	12	+13.5
8	"	"	11	10	13	9	0	0	+9.3
9	"	"	-1	-2	6	3	-7	-6	-1.3
10	"	"	-4	-1	7	8	5	6	+4.7
11	"	"	10	12	18	14	14	13	+13.2
12	"	"	14	18	17.5	13	8	4	+11.7
13	"	"	2	-1.5	-4	-3.5	-1	3	-0.7
14	"	"	3	3	3	2	-3	-10	-1.3
15	"	"	-11	-5.5	0	11	12	9	+1.9
16	"	"	16	15	22	16.5	17	17	+15.5
17	"	"	10	8	8	5	3	4	+7.3
18	"	"	4	-3	-3.5	-6.5	0	2	-1.0
19	"	"	8	9	10	9.5	5.5	11	+6.0
20	"	"	6	3	6	-5	-3	10	+5.3
21	"	"	6.5	11	10	7	6	1	+7.4
22	"	"	-1	-7	-7	-6	-10	-11	-7.3
23	"	"	-10	-4	0	4	5	10	+0.8
24	"	"	14	15	19	19	16	23	+18.2
25	"	"	21	14	3	4	3	-11	+6.2
26	"	"	-17	-21	-20	-17	-10	-10	-15.8
27	"	"	-11	-12	-7	-11	-10	-12.5	-10.8
28	"	"	0	4	1	-3	-8	-8	-2.0
29	"	"	-7	-6	0	0	3	3	+1.7
30	"	"	2	3	3	9	11	6	+6.0
31	"	"	9	7	8	2	1	3	+4.3
Mean	72.0	14.3	+7.52	+7.37	+6.03	+7.36	+7.26	+6.53	+7.54

Correction to refer mean of 5 to mean of 24 readings = -0°.05.

OF OBSERVATIONS FOR TEMPERATURE.

9

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX.
(Expressed in degrees of Fahrenheit's scale.)

November, 1858.

Day of the month.	Lat. north.	Long. west of Greenwich.	2 ^o	4 ^o	6 ^o	8 ^o	10 ^o	Noon.	2 ^o	4 ^o	6 ^o	8 ^o	10 ^o	Midn't.	Mean.
1	Port Kennedy		+ 4 ^o	+ 5 ^o	+ 5 ^o	+ 6 ^o	+ 10 ^o	+ 12 ^o	+ 12 ^o	+ 9 ^o	+ 11 ^o	+ 11 ^o	+ 11 ^o	+ 11 ^o	+ 11 ^o
2	72° 02' 54" 14'		+ 13 ^o	+ 12 ^o	+ 12 ^o	+ 10 ^o	+ 3 ^o	+ 2 ^o	+ 8.5	+ 11	+ 12	+ 12	+ 12	+ 12	+ 12
3	Winter quarters		- 5	- 5	- 5	- 5	- 5	- 5	- 5	- 4	- 12	- 15	- 15	- 15	- 15
4	"		- 14	- 14	- 14	- 14	- 13	- 14	- 11	- 11	- 11	- 11	- 10	- 11	- 12.3
5	"		- 11	- 12	- 14	- 12	- 13.5	- 15	- 14	- 16	- 16	- 15	- 13	- 11	- 14.0
6	"		- 16	- 8	- 6	- 2	+ 8	+ 8	+ 8	+ 8	+ 4	- 4	- 4	- 3	- 9.5
7	"		- 15	- 16	- 16	- 16	- 15	- 15	- 14	- 12	+ 1	- 9	- 12	- 12	- 12.5
8	"		- 12	- 12	- 13	- 12	- 12	- 10	- 11	- 11	- 11	- 11	- 11	- 11	- 11.4
9	"		- 14	- 14	- 14	- 12	- 11	- 9	- 8	- 7	- 7	- 7	- 8	- 12	- 10.3
10	"		- 12	- 14	- 15	- 17	- 14	- 17	- 20	- 21	- 16	- 17	- 17	- 17	- 16.8
11	"		- 16	- 15	- 14	- 14	- 13	- 13	- 12	- 12	- 9	- 7	- 7	- 7	- 11.8
12	"		- 7	- 7	- 10	- 12	- 10.5	- 12	- 14	- 13	- 13	- 13	- 13	- 15	- 12.0
13	"		- 13	- 10	- 9	- 8	- 7	- 7	- 7.5	- 9	- 10	- 11	- 10	- 9	- 9.2
14	"		- 7	- 7	- 11	- 8	- 11	- 13	- 16	- 17	- 20	- 27	- 31	- 30	- 17.0
15	"		- 16	- 22	- 31	- 31	- 31	- 30	- 29	- 31	- 31	- 30	- 29	- 29	- 30.1
16	"		- 24	- 26	- 22	- 22	- 29	- 20	- 18	- 14	- 14	- 12	- 11	- 11	- 18.5
17	"		- 5	- 2	+ 1	+ 4	+ 4	+ 2	- 5	- 8	- 4	+ 1	+ 3	+ 5	- 0.3
18	"		+ 6	+ 7	+ 9	+ 11	+ 11	+ 10	+ 9	+ 9	+ 10	+ 10	+ 10	+ 7	+ 9.1
19	"		+ 8	+ 7	+ 12	+ 12	+ 13	+ 13	+ 13	+ 12	+ 12	+ 12	+ 9	+ 8	+ 11.0
20	"		+ 4	+ 9	+ 11	+ 16	+ 12	+ 12	+ 4	+ 2	- 5	- 5	- 5	- 8	+ 3.8
21	"		- 8	- 5	+ 3	- 1	- 2	+ 3	+ 4	+ 4	+ 2	+ 1	- 5	- 5	- 0.3
22	"		- 7	- 10	- 10	- 16	- 16	- 17	- 17	- 18	- 21	- 22	- 22	- 23	- 16.6
23	"		- 31	- 22	- 21	- 20	- 19	- 21	- 23	- 23	- 22	- 25	- 24	- 25	- 21.9
24	"		- 34	- 25	- 27	- 27	- 29	- 29	- 29	- 34	- 34	- 33	- 36	- 36	- 25.2
25	"		- 24	- 23	- 23	- 24	- 23	- 23	- 23	- 23	- 25	- 26	- 26	- 24	- 24.6
26	"		- 26	- 24	- 26	- 26	- 26	- 26	- 26	- 27	- 27	- 27	- 26	- 24	- 26.8
27	"		- 25	- 22	- 21	- 21	- 21	- 21.5	- 22	- 27	- 27	- 27	- 28	- 25	- 23.8
28	"		- 25	- 23	- 22	- 20	- 20	- 20	- 19	- 19	- 17	- 18	- 16	- 16	- 19.6
29	"		- 14	- 16	- 16	- 14	- 14	- 14	- 10	- 10	- 9	- 8	- 8	- 12	- 8.8
30	"		- 6	- 9	- 10	- 9	- 7	- 7	- 7	- 7	- 7	- 7	- 9	- 11	- 6.2

Mean 72.0 94.2 -11.53 -11.20 -10.60 -10.33 -10.03 -10.32 -11.67 -11.57 -11.67 -12.17 -12.23 -12.57 -11.29

Correction = +0.12.

December, 1858.

Day of the month.	Lat. north.	Long. west of Greenwich.	2 ^o	4 ^o	6 ^o	8 ^o	10 ^o	Noon.	2 ^o	4 ^o	6 ^o	8 ^o	10 ^o	Midn't.	Mean.
1	Port Kennedy		-16 ^o	-18 ^o	-19 ^o	-19 ^o	-18 ^o	-17 ^o	-17 ^o	-22 ^o	-21 ^o	-21 ^o	-20 ^o	-20 ^o	-19.0
2	72° 02' 54" 14'		21	21	23	25	27	28	30	31	33	32	30	28	27.4
3	Winter quarters		20	27	26	25	24	23	25	26	28	28	28	28	27.0
4	"		28	28	30	35	39	40	39	38	37	37	37	37	35.4
5	"		36	34	35	33	32	31	32	32.5	30	32	33	31	32.5
6	"		28	28	30	32	32	32	32	30	33	31	30	32	30.8
7	"		30	30	31	31	31	32	30	31	24	33	33	34	31.2
8	"		29	29	29	37	32	31	29	27	32	34	34	34	27.8
9	"		33	32	33	37	32	31	29	28	32	34	33	30	30.0
10	"		23	23	20	17	17	18	18	21	23	25	27	30	21.8
11	"		31	32	32	34	33	33	35	39	41.5	40	40	40	35.9
12	"		38	37	37	38	36	36	36	36	36	35	37	38	34.5
13	"		36	37	39	39	38	36	37	38	37	37	37	37	36.1
14	"		36	39	36	34	35	36	30	33	33	28	28	30	32.8
15	"		31	34	33	33	33	32	32	32	37	38	38	39	34.1
16	"		32	40	42	43	42	44	43	43	42	41	42	42	41.9
17	"		43	43	42	41	38	38	38	39	37	37	37	37	36.5
18	"		32	33	32	33	34	34	34	43	45	45	43	34	33.4
19	"		35	33	33	33	30	28	28	29	31	33	33	32	31.7
20	"		34	34	39	32	27	23	21	16	16	15	16	16	23.5
21	"		13	14	19	24	25	29	32	35	34	35	36	37	34.5
22	"		37	35	34	32	32	34	35	31	30	29	30	29	32.5
23	"		29	30	39	33	33	35	34	35	35	37	35	35	33.4
24	"		38	38	39	40	41	43	44	44	44	44	44	45	42.0
25	"		44	45	45	45	44	45	44	42	44	45	45.5	47	44.5
26	"		47	47	46	46	44	44	45	45	46	46	46	46	45.3
27	"		32	32	30	33	32	30	32	32	30	33	32	30	31.5
28	"		33	32	29	32	32	31	32	30	30	30	31	31	31.1
29	"		29	31	30	36	34	35	37	39	36	35	36	36	34.6
30	"		31	37	37	36	37	40	39	38	42	45	43	39	39.1
31	"		39	37	38	35	31	34	30	36	36	39	39	36	36.3

Mean 72.0 94.2 -32.52 -32.41 -32.60 -33.32 -32.76 -32.81 -32.74 -33.16 -33.27 -33.35 -33.40 -33.80 -33.80 -33.87

Correction to refer to mean of 24 observations in a day = 0.60.

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX.
(Expressed in degrees of Fahrenheit's scale.)

January, 1859.

Day of the month.	Lat. north.	Long. west of Green.	2°	4°	6°	8°	10°	Noon.	2°	4°	6°	8°	10°	Midn't.	Mean.
1	Port Kennedy	—34°	—37°	—37°	—37°	—38°	—38°	—38°	—37°	—39°	—39°	—44°	—44°	—44°	—38.3
2	72° 01' 14" 14'		44	43	44	44	44	43	40	40	40	40	40	40	40.3
3	Winter Quarters		43	43	43	43	43	43	42	42	42	42	42	42	42.3
4	"		42	42	42	42	42	42	41	41	41	41	41	41	41.3
5	"		41	41	41	41	41	41	40	40	40	40	40	40	40.3
6	"		40	40	40	40	40	40	39	39	39	39	39	39	39.3
7	"		39	39	39	39	39	39	38	38	38	38	38	38	38.3
8	"		38	38	38	38	38	38	37	37	37	37	37	37	37.3
9	"		37	37	37	37	37	37	36	36	36	36	36	36	36.3
10	"		36	36	36	36	36	36	35	35	35	35	35	35	35.3
11	"		35	35	35	35	35	35	34	34	34	34	34	34	34.3
12	"		34	34	34	34	34	34	33	33	33	33	33	33	33.3
13	"		33	33	33	33	33	33	32	32	32	32	32	32	32.3
14	"		32	32	32	32	32	32	31	31	31	31	31	31	31.3
15	"		31	31	31	31	31	31	30	30	30	30	30	30	30.3
16	"		30	30	30	30	30	30	29	29	29	29	29	29	29.3
17	"		29	29	29	29	29	29	28	28	28	28	28	28	28.3
18	"		28	28	28	28	28	28	27	27	27	27	27	27	27.3
19	"		27	27	27	27	27	27	26	26	26	26	26	26	26.3
20	"		26	26	26	26	26	26	25	25	25	25	25	25	25.3
21	"		25	25	25	25	25	25	24	24	24	24	24	24	24.3
22	"		24	24	24	24	24	24	23	23	23	23	23	23	23.3
23	"		23	23	23	23	23	23	22	22	22	22	22	22	22.3
24	"		22	22	22	22	22	22	21	21	21	21	21	21	21.3
25	"		21	21	21	21	21	21	20	20	20	20	20	20	20.3
26	"		20	20	20	20	20	20	19	19	19	19	19	19	19.3
27	"		19	19	19	19	19	19	18	18	18	18	18	18	18.3
28	"		18	18	18	18	18	18	17	17	17	17	17	17	17.3
29	"		17	17	17	17	17	17	16	16	16	16	16	16	16.3
30	"		16	16	16	16	16	16	15	15	15	15	15	15	15.3
31	"		15	15	15	15	15	15	14	14	14	14	14	14	14.3
Mean	72.0	34.3	—33.75	—34.26	—34.97	—35.67	—36.31	—36.91	—37.55	—38.26	—38.95	—39.10	—39.11	—39.75	—35.54

Correction to refer to mean of 24 observations = -0.05 .

February, 1859.

Day of the month.	Lat. north.	Long. west of Green.	2°	4°	6°	8°	10°	Noon.	2°	4°	6°	8°	10°	Midn't.	Mean.
1	Port Kennedy	—41°	—41°	—41°	—39°	—38°	—34°	—33°	—32°	—32°	—21°	—22°	—26°	—32.3	
2	72° 01' 34" 14'		41	40	40	40	40	40	40	40	40	40	40	40	40.3
3	Winter Quarters		40	40	40	40	40	40	40	40	40	40	40	40	40.3
4	"		39	39	39	39	39	39	39	39	39	39	39	39	39.3
5	"		38	38	38	38	38	38	38	38	38	38	38	38	38.3
6	"		37	37	37	37	37	37	37	37	37	37	37	37	37.3
7	"		36	36	36	36	36	36	36	36	36	36	36	36	36.3
8	"		35	35	35	35	35	35	35	35	35	35	35	35	35.3
9	"		34	34	34	34	34	34	34	34	34	34	34	34	34.3
10	"		33	33	33	33	33	33	33	33	33	33	33	33	33.3
11	"		32	32	32	32	32	32	32	32	32	32	32	32	32.3
12	"		31	31	31	31	31	31	31	31	31	31	31	31	31.3
13	"		30	30	30	30	30	30	30	30	30	30	30	30	30.3
14	"		29	29	29	29	29	29	29	29	29	29	29	29	29.3
15	"		28	28	28	28	28	28	28	28	28	28	28	28	28.3
16	"		27	27	27	27	27	27	27	27	27	27	27	27	27.3
17	"		26	26	26	26	26	26	26	26	26	26	26	26	26.3
18	"		25	25	25	25	25	25	25	25	25	25	25	25	25.3
19	"		24	24	24	24	24	24	24	24	24	24	24	24	24.3
20	"		23	23	23	23	23	23	23	23	23	23	23	23	23.3
21	"		22	22	22	22	22	22	22	22	22	22	22	22	22.3
22	"		21	21	21	21	21	21	21	21	21	21	21	21	21.3
23	"		20	20	20	20	20	20	20	20	20	20	20	20	20.3
24	"		19	19	19	19	19	19	19	19	19	19	19	19	19.3
25	"		18	18	18	18	18	18	18	18	18	18	18	18	18.3
26	"		17	17	17	17	17	17	17	17	17	17	17	17	17.3
27	"		16	16	16	16	16	16	16	16	16	16	16	16	16.3
28	"		15	15	15	15	15	15	15	15	15	15	15	15	15.3
29	"		14	14	14	14	14	14	14	14	14	14	14	14	14.3
30	"		13	13	13	13	13	13	13	13	13	13	13	13	13.3
31	"		12	12	12	12	12	12	12	12	12	12	12	12	12.3
Mean	72.0	34.3	—36.64	—36.33	—36.32	—36.27	—36.86	—37.23	—37.53	—37.87	—38.26	—38.07	—38.31	—38.22	—36.69

Correction to refer mean of 12 to mean of 24 observations = —0.03.

Correction to refer mean of 12 to mean of 24 observations = -0.03 .

OF OBSERVATIONS FOR TEMPERATURE.

11

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX.
(Expressed in degrees of Fahrenheit's scale.)

March, 1850.

Day of the month.	Lat. north.	Long. west of Greenwich.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Noon.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Mean.	Mean of 6 observations.
1	Port Kennedy	72° 04' 94" 14'	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
2	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
3	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
4	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
5	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
6	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
7	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
8	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
9	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
10	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
11	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
12	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
13	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
14	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
15	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
16	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
17	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
18	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
19	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
20	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
21	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
22	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
23	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
24	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
25	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
26	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
27	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
28	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
29	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
30	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5
31	"	"	-31°	-28°	-31°	-33°	-28°	-28°	-27°	-30°	-29°	-29°	-28°	-28.5	5

Mean 72.0 24.5 -21.06 -21.60 -31.57 -19.45 -14.79 -11.65 -12.03 -12.77 -14.42 -14.22 -19.52 -20.66 -17.76

Correction to refer mean to 24 observations = +0°.02.

April, 1850.

Day of the month.	Latitude north.	Longitude west of Greenwich.	2 ^h	4 ^h	Noon.	2 ^h	4 ^h	11 ^h	Mean.
1	Port Kennedy	72° 04' 94" 14'	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
2	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
3	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
4	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
5	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
6	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
7	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
8	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
9	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
10	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
11	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
12	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
13	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
14	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
15	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
16	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
17	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
18	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
19	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
20	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
21	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
22	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
23	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
24	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
25	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
26	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
27	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
28	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
29	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
30	"	"	-11°	-12°	-11°	-11°	-11°	-11°	-11.7
Mean	72.0	24.5	-11.38	-12.27	-11.35	-11.60	-11.67	-11.82	-11.45

Correction to refer observed mean to mean from 24 observations = -0°.17.

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX.
(Expressed in degrees of Fahrenheit's scale.)

May, 1859.

Day of the month.	Latitude north.	Longitude west of Greenwich.	5 ^h	6 ^h	Noon.	4 ^h	5 ^h	11 ^h	Mean.
1	72° 01' 14"	Port Kennedy Winter Quarters	6 ^h	17.5	4 ^h	27.5	2 ^h	6 ^h	+17.5
2			5	8.5	11	14.5	8.5	1	8.1
3			3	5.5	9.5	8	7	1.5	6.7
4			3	7.5	15.5	8.5	3.6	0	4.7
5			4	5	19	17.5	6.5	0	5.0
6			4	9	5	6.5	3.5	-0.5	5.2
7			3	8	6.5	4	3	0	4.1
8			5	11.5	14	16	5	3.5	8.2
9			2	6	9	9	4	6.5	5.1
10			7	16.5	12	18.5	14.5	8.5	11.8
11			16	22.5	19	19	14.5	6.5	16.8
12			14	20.5	14	17	15	16	18.9
13			10	12	13.5	15.5	14	13	13.9
14			20	22	27.5	19	16.5	17.5	20.4
15			17	19.5	24	29	23.5	21.5	22.4
16			23	24.5	16	19.5	12.5	13	17.4
17			15.5	19	21.5	20	17	13	17.7
18			20	22	20	21	14	7	15.5
19			14	15.5	25	28	19.5	16	19.7
20			19	22	18	19	14	14	17.5
21			19	21.5	22.5	20	13	11	17.8
22			9	5	17	13	15	15	13.8
23			17.5	19	22	20.5	19	18	18.3
24			18	22	23	21.5	17	11.5	18.8
25			18	16	20	17	20	23	18.7
26			24.5	26	27.5	27.5	22.5	20.5	24.8
27			19	20	31	25.5	26	24.5	24.7
28			20	22	35	34.5	24	21	25.4
29			24	26	33.5	28	20.5	18.5	24.7
30			21	22.5	25.5	23	21.5	21	24.1
31			20	21	24.5	24	22.5	21	22.2
Mean	72.0	84.2	+13.34	+10.50	+18.81	+18.21	+14.26	+11.39	+15.42

Correction to refer observed mean to mean of 24 observations = -0°.35.

June, 1859.

Day of the month.	Latitude north.	Longitude west of Greenwich.	5 ^h	6 ^h	Noon.	4 ^h	5 ^h	11 ^h	Mean.
1	72° 01' 14"	Port Kennedy Winter Quarters	20 ^h	24 ^h	27.6	25 ^h	24.5	19.5	+27.4
2			19	21	25	26.5	25.5	23	25.1
3			31.5	36	45.5	36	27.5	26.7	36.7
4			31	38	42.5	38	30	25	34.1
5			30	33.5	44.5	33	30.5	25.5	32.5
6			27	34.5	39.5	34	29.5	27.5	32.2
7			33	36	36	34.5	32	24	32.5
8			22	37.5	39	37	32.5	31	34.8
9			34	36.5	40	39.5	31.5	31.5	35.5
10			33	36	35.5	34.5	33	29.5	33.5
11			33	33.5	38.5	36	37	34	35.5
12			26	40	41.5	39	34.5	31	38.2
13			36	44	41.5	39	34	29.5	37.3
14			33.5	37	39.5	36	34	30.5	35.1
15			30	45	45	44.5	38.5	36	41.2
16			38	39.5	43	42	38	33	39.3
17			38	47.5	40.5	43	34	33	40.8
18			34.5	38.5	39.5	36	35	34.5	36.3
19			36	42.5	37.5	33	34.5	32.5	36.3
20			43	49	49	38	32.5	33	38.2
21			34	37.5	47.5	40	37.5	34.5	39.8
22			35	39	37	37	35.5	33	36.1
23			33	35.5	37	35	34.5	33	34.7
24			35	39	39	38.5	36	33.5	36.3
25			35.5	41	41	39	34.5	32.5	37.3
26			35	36.5	39.5	38	37.5	34	36.8
27			34.5	35	37	36.5	36	35.5	35.4
28			25	40	39.5	37	35	34.5	36.8
29			27	40	35.5	37	39	37	37.4
30			38	44.5	41	37	33.5	34	38.3
Mean	72.0	84.2	+33.33	+38.65	+39.82	+36.92	+33.93	+31.05	+36.52

Correction to refer mean of 5 to mean of 24 observations = -0°.41.

OF OBSERVATIONS FOR TEMPERATURE.

13

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX.
(Expressed in degrees of Fahrenheit's scale.)

July, 1850.

Day of the month.	Lat. north.	Long. west of Greenwich.	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	Mean.	Mean of 6 observations.	
1	Port Kennedy	37° 5'	..	37° 5'	..	43°	..	43° 5'	..	40°	..	41°	..	+40° 8'	+40° 8'
2	"	37° 11' 34" 14"	..	42°	..	40°	..	40°	..	46°	..	45° 5'	..	43° 5'	43° 7'
3	"	Winter Quarters	..	38°	..	42° 5'	..	41° 5'	..	38°	..	33° 5'	..	37° 6'	37° 9'
4	"	"	..	37°	..	42°	..	44°	..	40°	..	37° 5'	..	38° 9'	38° 1'
5	"	"	..	37°	..	42°	..	44°	..	42°	..	39° 5'	38°	38°	38° 1'
6	"	"	35°	36°	37°	37° 5'	42°	41°	38° 5'	38° 5'	37°	36°	36°	37° 9'	
7	"	"	35° 5'	36°	36°	36°	40° 5'	41° 5'	42° 5'	37°	36°	35°	34° 5'	37° 9'	
8	"	"	32°	33°	32°	42°	40° 5'	38° 5'	38° 5'	37°	36° 5'	35°	35°	36° 5'	
9	"	"	34° 5'	35°	36°	36°	37°	43°	39° 5'	38°	37° 5'	36°	33° 5'	36° 7'	
10	"	"	34°	30°	32°	35° 5'	40°	40°	36° 5'	35° 5'	35°	35°	35°	36°	35° 4'
11	"	"	35°	34° 5'	36°	39°	39°	39°	41°	41° 5'	40°	37°	35° 5'	36° 0'	
12	"	"	34°	34°	36°	36° 5'	38°	37°	35°	39°	38°	36° 5'	36°	36° 7'	
13	"	"	37°	40°	40°	40°	39°	42°	38°	37°	40° 5'	39°	37°	38° 7'	
14	"	"	35° 5'	36°	36°	43°	43°	42°	42°	38° 5'	40°	39°	36° 5'	38° 1'	
15	"	"	34°	34°	34°	34° 5'	38°	42°	38°	38°	37° 5'	35°	35°	36° 3'	
16	"	"	35°	37°	35° 5'	38°	42°	43°	40°	39°	37° 5'	36°	35°	37° 8'	
17	"	"	35°	38°	40°	40°	46°	44°	43°	45°	42°	39°	38°	38° 4'	
18	"	"	34°	33°	34°	37°	37°	37°	37°	37° 5'	37°	37°	36°	34°	38° 9'
19	"	"	34°	35°	35° 5'	37°	40° 5'	40° 5'	39°	39°	36°	37°	35°	37° 2'	
20	"	"	33°	32°	37°	42°	47° 5'	42°	42°	42° 5'	42°	40°	38°	37° 5'	
21	"	"	37°	38°	38°	38°	40°	41°	40°	40°	41°	41°	40°	39° 4'	
22	"	"	39°	41°	42°	45°	49°	49°	49°	50°	46°	45°	44°	44° 5'	
23	"	"	44°	45°	46°	45°	49°	46°	45°	43°	40°	37°	34°	43° 3'	
24	"	"	35°	39°	43°	44°	49°	52°	47°	47°	45°	44°	42°	44° 0'	
25	"	"	38°	38°	38°	40°	40°	40°	40°	40°	40°	40°	40°	41° 1'	
26	"	"	39°	42°	45°	44°	50°	52°	49°	46°	46°	46°	42°	45° 3'	
27	"	"	40°	39°	42°	42°	43°	49°	41°	41°	41°	40°	44°	37°	41° 5'
28	"	"	38°	40°	44°	49°	49°	42°	42°	47°	43°	43°	41°	37°	42° 5'
29	"	"	38°	38°	38°	40°	50°	55°	53°	54°	53°	45°	41°	46° 7'	
30	"	Off Observation Point	41°	40°	42°	45°	45°	48°	47°	50°	49°	45°	47°	49°	45° 7'
31	"	"	43°	39°	45°	45°	45°	46°	46°	49°	50°	46°	47°	49°	45° 3'

Mean 72.0 74.2 +36.51 +37.24 +39.24 +41.29 +42.90 +43.48 +42.34 +41.98 +41.07 +40.02 +38.56 +38.29 +40.12
Correction to refer mean of 12 to mean of 24 observations = -0°.01.

August, 1850.

Day of the month.	Latitude north.	Longitude west of Greenwich.	4°	5°	Mean.	4°	5°	Mean.	Mean.	Mean of 6 observations.
1	Port Kennedy	41°	42°	45°	45°	42°	40°	+42° 5'		
2	"	39°	37°	36°	35°	35°	35°	36°		
3	"	35°	34°	36°	41°	40°	39°	37° 5'		
4	"	29°	40°	41°	40°	34°	39° 2'			
5	"	33°	37°	39°	42°	39°	38° 2'			
6	"	34°	39°	39°	40°	38°	36° 3'			
7	"	36°	38°	34° 5'	41°	39°	36° 9'			
8	"	32°	35°	37°	37°	34°	34° 7'			
9	Long Island	33°	34°	34°	37°	36°	33° 5'			
10	Adelaide Bay	33°	34°	36°	36°	35°	35° 2'			
11	"	33°	36°	30°	32°	36°	37° 9'			
12	"	38°	39°	40° 5'	39°	39° 5'	38°			
13	"	36°	37°	38° 5'	38° 5'	41°	38° 4'			
14	"	41°	41°	40°	38°	38° 5'	42°			
15	Off Pury Beach	39°	38°	37°	35°	34° 5'	31°			
16	Off Elwin Bay	31°	30° 5'	38°	32°	33°	31°			
17	"	..	..	..	..	..	..	+34° 0'		
18	72° 15'	87° 16'	32°	35°	36°	35°	36°	35° 0'		
19	74° 00'	79° 40'	32°	33°	33°	32°	31°	32° 5'		
20	73° 12'	76° 40'	32°	31°	30°	31°	30°	31° 2'		
21	72° 43'	72° 0'	33°	31°	35°	31° 5'	34°	34°		
22	73° 01'	67° 17'	33°	34°	34°	31°	32°	31°		
23	73° 19'	69° 15'	33°	34°	38°	34°	36°	36° 2'		
24	72° 7'	59° 5'	36°	38°	38°	37°	37°	37° 2'		
25	70° 40'	55° 57'	38°	37°	35°	36°	36°	36° 5'		
26	69° 39'	56° 30'	35°	35°	35°	37°	39°	37°		
27	"	"	33°	34°	35°	37°	35°	36°		
28	Goshaven	31°	36°	38°	40°	36°	36°	36° 2'		
29	"	37°	38°	40°	42°	47°	33°	38° 5'		
30	"	32°	39°	47°	44°	40°	38°	40° 0'		
31	"	36°	38°	44°	42°	39°	37°	39° 3'		

Mean 71.9 70.8 +34.65 +36.37 +37.97 +37.65 +37.10 +35.52 +36.56
The correction to refer mean of 6 to mean of 24 observations becomes zero.

TEMPERATURE OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX. (Expressed in degrees of Fahrenheit's scale.)									
September, 1859.									
Day of the month.	Latitude north.	Longitude west of Greenwich.	4 ^h	5 ^h	Noon.	4 ^h	5 ^h	Midn't.	Mean.
1	49° 53'	54° 00'	57°	40"	47°	43°	40"	47°	+42°.5
2	67 20	57 22	38	39	37	40	37	35	37.7
3	64 31	57 05	33	34	35	37	37	34	35.0
4	63 47	56 01	34	39	40	40	40	39	38.7
5	62 38	56 00	42	43	42	42	39	39	41.2
6	62 23	54 54	38	40	39	41	39	38	39.2
7	61 22	53 47	37	38	38	38	37	36	37.3
8	60 20	52 31	36	40	41	40	39	37	38.5
9	58 41	48 21	39	39	41	42	39	39	39.5
10	58 18	44 21	39	42	47	44	42	40	42.3
11	57 57	40 13	42	43	44	45	44	45	43.7
12	56 14	34 19	45	45	46	46	47	46	46.2
13	56 34	31 08	46	52	54	54	54	54	52.7
14	54 25	26 51	55	56	57	54	52	49	51.8
15	53 25	22 30	55	57	59	57	56	55	56.5
16	52 05	18 11	54	59	64	62	59	58	59.5
17	51 18	16 22	58	59	62	61	60	60	60.0
18	50 38	12 30	58	58	59	59	59	60	58.8
Mean	55.9	40.2	+45.6	+45.7	+47.5	+47.5	+45.6	+45.0	+45.79
Correction to refer mean of 6 to mean of 24 readings = zero.									

Notes to the preceding Abstract of the Temperature Record.

July, 1857. The column headed "mean" contains the mean daily temperature derived from six equidistant observations; the figures in the next column of "deduced mean" were obtained as follows: Suppose the mean temperature of July 3d be required from the observations at 8 A. M. and 8 P. M., the observations at each of these hours in the *full* series were compared with their respective mean, as given in the preceding column; thus, from 23 values, we find the correction to the 8 A. M. reading, to obtain the mean reading of the day, +0°.8, and in a similar manner, for the 8 P. M. reading, +0°.2. Applying these corrections to 57°.0 and 57°.5 respectively, and taking the mean, we find for July 3d the mean temperature 57°.7. The following table contains these corrections to each observing hour in the month of July, in order to produce the mean of six readings a day, viz:—

For 4 A. M.	+0°.5	For 4 P. M.	—1°.5
" 8 A. M.	+0.8	" 8 P. M.	+0.2
" noon	—0.8	" midnight	+1.0

The means require a further small correction to refer them to what they would be if hourly observations had been made. For this purpose, I have made use of the tables of hourly corrections for periodic variations for Boothia Felix and Drontheim, as given in the Smithsonian collection of meteorological and physical tables by A. Guyot, and also of a similar table given in the discussion of Dr. Kane's meteorological observations for Van Rensselaer Harbor, in Vol. XI. of the Smithsonian Contributions to Knowledge. For these localities, to which has been added Leith, we have, for the month of July, the correction to the mean of six observa-

tions at 4^h, 8^h, 12^h, A. M. and P. M., to obtain the daily mean from twenty-four observations:—

	Latitude.	Longitude.	Fahrenheit.
Boothia Felix	62° 59'	92° 1'	0°·00
Drontheim	63 26	—10 25	—0·09
Van Rensselaer	78 37	10 53	—0·06
Loth	55 59	— 3 10	+0·06
Adopted correction			—0·03

The resulting mean temperature for the month of July, in latitude 62° N. and longitude 39°·1 W. is, therefore, $+45^{\circ}·56 - 0^{\circ}·03 = +45^{\circ}·53$, as given in the general table of results. The means for the hours 4, 8, and 12, are derived from the observations between the 6th and the 31st, omitting those on the 19th, and taking 53° for the interpolated value at 4^h A. M. on the 6th.* For the sake of uniformity, the quantity $+1^{\circ}·26$ has been added to each of these hourly means, so that the mean of all may again produce 45°·56.

The correction to refer the mean from the observations at certain hours of the day to the mean derived from twenty-four readings a day, for the remaining months, has been deduced from the observations at Van Rensselaer Harbor and Boothia Felix. The following table contains these corrections:—

Month.	Year.	Observed Hours.	CORRECTIONS DEDUCED.		
			Van Rensselaer Harbor.	Boothia Felix.	Mean.
August	1857, 1858, 1859	4, 8, 12, A. M. and P. M.	—0°·01	0°·00	0°·00
September	"	"	—0·01	—0·07	—0·04
October	"	2, 4, 6, 8, 10, 12, A. M. and P. M.	+0·04	0·00	+0·02
November	" 1858	" " " "	+0·02	+0·23	+0·12
December	" "	" " " "	0·00	+0·03	0·00
January	1858, 1859	" " " "	—0·05	—0·01	—0·03
February	" "	" " " "	—0·05	—0·01	—0·03
March	" "	" " " "	+0·04	0·00	+0·02
April	" "	" " " "	+0·02	+0·03	+0·02
May	"	4, 8, 12, A. M. and P. M.	—0·13	—0·01	—0·07
June	"	" " " "	—0·15	+0·01	—0·07
July	"	" " " "	—0·03	0·00	—0·01
September	"	" " " "	+0·01	—0·01	0·00
October	"	" " " "	+0·10	0·00	+0·05
April	1859	5, 8, 12, A. M.; 4, 8, 11, P. M.	—0·56	—0·13*	—0·17
May	"	" " " "	—0·42	—0·26*	—0·38
June	"	" " " "	—0·44	—0·39*	—0·41

* Indicates that the weight 2 has been given to the correction derived from the Boothia Felix station, as being the nearer one.

August, 1857. The two omissions on the 6th were supplied by 42° and 43°.

September, 1857. The values for the 21st were interpolated as follows: 2 A. M. 12°·0, 6 A. M. 15°·2, and 10 A. M. 21°·2. From the observations between the 21st and 30th, we find that the mean of twelve observations a day is 0°·15 smaller than that derived from six observations a day; the second column of means between the 1st and 21st, therefore, is derived from the preceding column by subtracting

* The interpolated value for 8 P. M. on the 21st is 38°·6.

0°.1 and 0°.2 alternately from the successive daily means. The monthly mean temperature at the hours 4, 8, noon, 4, 8, midnight, was first made out (if diminished by the above constant 0°.15, their mean would exactly give 19°.55). To obtain the intermediate values for 2, 6, 10, A. M. and P. M., the observations between the 21st and 30th were used as follows:—

Mean temp. at midnight for last 10 days	12°.30	Same for 30 days, 17°.38
“ “ 2 A. M. “ “	11.85	
Difference	—0.45	

which, applied to 17°.38, gives 16°.93; in the same way, we obtain from the following hour, 4 A. M., the value 17°.38. The mean, or 17°.15, has consequently been adopted as the mean monthly temperature at 2 A. M. The remaining values were derived in a similar manner.

February, 1858. On the 11th and some following days, there are occasionally pencil figures inserted between the lines. These are neither used nor explained.

April, 1858. The daily mean from six observations differs from the daily mean from twice this number of observations by 0°.13, as found from the values between the 1st and 17th; a correction of —0°.13 has, therefore, been applied to the deduced means on and after the 18th, in order to refer the same to the result produced by twelve observations. The hourly means at the bottom of the page were obtained in the manner explained in the note to the hourly means of the month of September, 1857, viz: through a comparison of the hourly means of the *full series*, and applying the correction (the mean found from the preceding and following column) to the monthly mean at the hours 4, 8, 12, etc.

May, 1858. The temperature at 8 A. M. on the 2d was assumed to be 30°.5.

March, 1859. The correction to refer the mean from six observations on each of the last four days of the month to the daily mean as resulting from twelve observations, was found by comparison of the respective means on the twelve days preceding; it was found —0°.16. The mean hourly temperature for the hours 2, 6, 8, 10, was obtained by the process applied on two former occasions.

April, 1859. The bar in the column for 4^h and in the column for midnight, indicates that the observations were taken one hour later and one hour earlier, or at 5^h and 11^h respectively. This practice was discontinued on the 5th of July following.

July, 1859. For the temperatures of the 5th, at the hours 2, 4, 6, 10, A. M., I have adopted the interpolated values 36°, 36°.5, 39°, 43°, respectively. The correction to refer the mean of six observations (hours 5, 8, noon, 4, 8, 11) to the mean of twelve observations (hours 4, 8, 12, A. M. and P. M.), was derived from the tables constructed for Van Rensselaer and Boothia Felix; the latter value having the weight 2, it was found = —0°.21, which quantity was applied in the first column of means, July 1st to July 4th inclusive. To obtain the correct hourly means for the month, the numbers in the column for 5^h (first four days) were first referred to the reading at 4^h by subtracting 0.5. The same correction was applied to refer the readings from 11 P. M. to midnight. The monthly means for the hours 4, 8, 12, A. M. and P. M., being known, the means for the interme-

diat hours were found by comparison of the respective readings on the last twenty-seven days of the month, as has been explained in similar cases.

August, 1859. The value $34^{\circ}.0$ for the mean temperature on the 17th was interpolated, which required a corresponding diminution of $0^{\circ}.08$ for each of the hourly means, in order to produce the same monthly temperature of $+36^{\circ}.58$.

September, 1859. The means of this month are of little value, the month being incomplete, and the change in latitude (and longitude) very considerable.

The two following tables contain a recapitulation of the results of the preceding abstracts. Table I exhibits the mean monthly temperature at the locality indicated by its latitude and longitude, also the *relative* maxima and minima, and relative monthly extreme range, as observed in either the bi-hourly or the four-hourly series. The absolute maxima and minima were not recorded. Table II contains the mean monthly temperatures for each observing hour, and is intended to serve as the basis for the discussion of the diurnal variation, while the first table furnishes the means for the discussion of the annual variation of the temperature. The column headed "mean," in Table II, differs from the corresponding column in Table I, for this reason: that, in Table II, no correction has been applied to refer the mean of six or twelve observations in a day (as the case may be) to the reading of twenty-four observations.

TABLE I.—RECAPITULATION OF RESULTS OF MONTHLY MEAN TEMPERATURES OF THE AIR IN SHADE OBSERVED ON BOARD THE YACHT FOX.
(Expressed in degrees of Fahrenheit's scale.)

Year.	Month.	Latitude north.	Longitude west.	Mean temperature.	Relative maxima.	Relative minima.	Relative range.	Correction for index error (to mean temp.).
1857	July	62°.0	79°.1	+45°.53	+61°	+31°	30°	
"	August	74.0	56.8	+34.65	+51	+23	28	
"	September	75.3	62.0	+39.50	+36	-2	38	
"	October	75.2	67.9	+5.73	+32	-13.5	45.5	-0°.07
"	November	74.8	69.1	-4.76	+31	-32	63	-0.16
"	December	74.3	67.4	-21.45	+5	-56	41	-0.20
1858	January	72.2	63.7	-24.87	-8	-46	38	-0.20
"	February	71.5	60.9	-15.34	+11	-39.5	50.5	-0.19
"	March	69.4	56.1	-3.29	+15	-27	42	-0.14
"	April	66.0	57.7	+8.06	+36	-25	61	-0.05
"	May	65.7	52.7	+20.83	+45	+16.5	34.5	
"	June	74.6	60.1	+33.97	+50	+24	26	
"	July	74.4	76.4	+36.60	+49	+31	18	
"	August	73.1	88.5	+34.52	+44	+24.5	19.5	
"	September	72.0	94.4	+25.43	+37.5	+8	29.5	
"	October	72.0	94.2	+7.59	+29.5	-21	40.5	-0.15
"	November	72.0	94.2	-11.17	+13	-33	46	-0.43
"	December	72.0	94.2	-32.97	+16	-47	63	-0.66
1859	January	72.0	94.2	-23.57	-14	-48	34	-0.85
"	February	72.0	94.2	-56.06	-12	-68	56	-1.02
"	March	72.0	94.2	-17.76	+12	-39	51	-0.46
"	April	72.0	94.2	-2.62	+31	-27	58	-0.20
"	May	72.0	94.2	+15.04	+35	-6.5	41.5	
"	June	72.0	94.2	+35.41	+50.5	+19	31.5	
"	July	72.0	94.2	+40.12	+55	+30	25	
"	August	71.9	79.8	+36.58	+47	+30	17	
"	September	56.9	40.9	+45.79	From 18 days' observations			

TABLE II.—DIURNAL VARIATION OF THE TEMPERATURE OF THE AIR IN SHADE.
 Recapitulation of the preceding mean hourly values for each month, and of their monthly mean temperature.

Year.	Month.	Lat. north.	Long. west.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Noon.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Midn't.	Mean.
1857	July	62.0	39.1	..	..	..	..	..	..	..	..	..	..	..	..	..
	Aug.	74.9	59.9	..	..	..	..	..	..	..	..	..	..	..	..	..
	Sept.	78.3	65.9	..	..	..	..	..	..	..	..	..	..	..	..	..
	Oct.	75.2	67.9	..	..	..	..	..	..	..	..	..	..	..	..	..
	Nov.	74.9	69.1	..	..	..	..	..	..	..	..	..	..	..	..	..
	Dec.	74.5	67.4	..	..	..	..	..	..	..	..	..	..	..	..	..
	Jan.	73.2	65.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	Feb.	71.5	60.9	..	..	..	..	..	..	..	..	..	..	..	..	..
	March	69.4	59.1	..	..	..	..	..	..	..	..	..	..	..	..	..
	April	69.0	57.7	..	..	..	..	..	..	..	..	..	..	..	..	..
	May	69.5	55.7	..	..	..	..	..	..	..	..	..	..	..	..	..
1858	June	74.6	60.1	..	..	..	..	..	..	..	..	..	..	..	..	..
	July	74.4	70.4	..	..	..	..	..	..	..	..	..	..	..	..	..
	Aug.	73.1	88.5	..	..	..	..	..	..	..	..	..	..	..	..	..
	Sept.	72.0	94.4	..	..	..	..	..	..	..	..	..	..	..	..	..
	Oct.	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	Nov.	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	Dec.	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	Jan.	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	Feb.	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	March	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	April	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
1859	May	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	June	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	July	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	Aug.	71.9	70.5	..	..	..	..	..	..	..	..	..	..	..	..	..
	Sept.	70.9	40.9	..	..	..	..	..	..	..	..	..	..	..	..	..
	Oct.	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	Nov.	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	Dec.	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	Jan.	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	Feb.	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..
	March	72.0	94.2	..	..	..	..	..	..	..	..	..	..	..	..	..

Discussion of the Annual Variation and of the Temperature at Different Seasons of the Year.

The monthly means brought out in Table I refer to different localities and years, and require to be combined with reference to these changes. The "Fox" remained stationary at the winter quarters for nearly a whole year—between August, 1858, and August, 1859—and we will, therefore, first examine the annual variation, the mean temperature of the seasons and of the whole year, for Port Kennedy, in north latitude 72° 01', west longitude 94° 14', near the eastern entrance to Belot Straits, which separates North Somerset from Boothia Felix. Our monthly means for August, 1858 and 1859, require to be corrected for difference of position. For this purpose, I have projected on a suitable chart the two isothermal lines for the month of August, constructed by me on the basis of Dove's investigation, and published in the 2d volume, Appendix No. XIII, of Dr. Kane's Narrative of his Arctic Expedition (north of Smith Straits), in the years 1853-'54-'55. By means of these curves, we find that the positions of August, 1858 (viz., latitude 73°.1, longitude 88°.5), and of August, 1859 (viz., latitude 71°.9, longitude 79°.8), can be assumed as lying nearly on the same isotherm, with a temperature of 1°.4 Fahr. relatively colder than the isotherm passing through Port Kennedy in that month; the normal distance between the isotherms differing 4°.5 in temperature being nearly 6° of arc. In the following table, the temperature for the month of August is derived from the mean of the respective observations of 1858 and 1859 increased by 1°.4, in order to refer the value to the locality of Port Kennedy.

TABLE III.—MEAN MONTHLY TEMPERATURE OF THE AIR IN SHADE OBSERVED AT PORT KENNEDY, IN LATITUDE 12° 01' N., AND LONGITUDE 94° 14' W., IN THE YEARS 1855 AND 1859.

1855-'59	August	+36°.55	1859	February	—36°.66
1859	September	+25.43	"	March	—17.76
"	October	+ 7.59	"	April	— 2.62
"	November	—11.17	"	May	+15.64
"	December	—32.97	"	June	+15.11
1859	January	—33.37	"	July	+40.12

To express the above and other periodic results in an analytical form, Bessel's formula of interpolation for periodic functions, and depending on the method of least squares,¹ will be made use of throughout the discussion; a practice which has now become almost universal in meteorological and many other physical investigations.

The above numbers will be found represented by the formula—

$$T = +2°.17 + 28°.70 \sin (\theta + 248° 4') + 0°.58 \sin (2\theta + 279° 57') + 1°.14 \sin (3\theta + 275° 53')$$

T representing the monthly values of the annual variation, and the angle θ counting from January 1st at the rate of 30° a month. According to this expression, the mean annual temperature at Port Kennedy is +2°.17 Fahr.

The strict application of Bessel's formula requires the intervals between the successive observations or means to be of equal length, and a small correction, therefore, becomes necessary on account of the unequal length of the months. This correction, generally too small to be noticed in low latitudes, is of sufficient magnitude in very high latitudes not to be neglectable. The following numbers show the quantity, in days and fractions of a day, by which the middle of each actual month differs from the mean of each month of average duration (30.4 days for a common, and 30.5 days for a leap, year), and for which interval a correction, —depending, also, on the magnitude of the variation of the temperature—is to be applied. A positive sign indicates that the middle of the actual month occurs earlier than the middle of the normal month; a negative sign indicates the reverse. Commencing with January, and proceeding in regular order, these intervals are as follows :—²

—0'.3	+0.6	+1.5	+1.5	+1.4	+1.3	+1.2	+0.7	+0.6	+0.5	+0.4	+0'.3
—0.2	+0.2	+0.8	+0.8	+0.9	+0.8	+0.8	+0.2	+0.2	+0.2	+0.2	+0.2

The upper line is for a common year, the lower line for a leap year. These numbers suppose the angle θ to be zero for the commencement of the civil year, and that the daily mean temperature, so far as the annual fluctuation is concerned, refers to the middle of the day. The corrections become greatest for the spring and autumn months, when the annual variation is most rapid. To obtain an ap-

¹ Explained at length by Sir J. Herschel in the article "Meteorology," Vol. XIV, 8th edition of the *Encyclopædia Britannica*.

² These numbers were given in my discussion of the meteorological observations of the second Grinnell Expedition, under command of Dr. E. K. Kane. See Vol. XI of the Smithsonian Contributions to Knowledge, 1859.

proximate value for the diurnal change for the middle of each month, the above formula was used, the increase in the value of θ for one day being 59'.2. Multiplying the daily change into the above intervals, we obtain the following mean monthly temperatures corrected for unequal duration, to which numbers the correction for index error has been added, as given in the third column of the table.

PORT KENNEDY. MEAN TEMPERATURE OF THE AIR IN SHADE IN EACH NORMAL MONTH.					
Month.	Mean temp.	Cor'd for index.	Month.	Mean temp.	Cor'd for index.
January	-33°.61	-34°.44	July	+39°.56	+39°.56
February	-35.67	-36.49	August	+36.76	+36.76
March	-16.98	-17.44	September	+25.13	+25.13
April	-1.68	-1.58	October	+7.57	+7.12
May	+15.87	+15.47	November	-11.43	-11.46
June	+15.67	+15.67	December	-33.69	-33.75

The maximum corrections for inequality in the length of the month were +0°.94, in April, and -0°.32, in October. The above monthly means, as corrected for index error, will be found represented by the expression (II)—

$$T = +2°.02 + 39°.29 \sin (\theta + 249° 5') + 0°.80 \sin (2\theta + 256° 56') + 1°.06 \sin (3\theta + 274° 43').$$

The numerical coefficients differ but slightly from the corresponding values in the first expression. The observations are represented as follows (the hundredths have been omitted as having no real value):—

Month.	Mean corrected for index error.	Mean corrected for index and inequality.	Same by Form. II.	Difference.	Month.	Mean corrected for index error.	Mean corrected for index and inequality.	Same by Form. II.	Difference.
January	-34.40	-34°.44	-36°.42	+4°.0	July	+40°.12	+39°.56	+40°.92	-0°.8
February	-37.68	-36.69	-33.15	-3.5	August	+25.95	+26.76	+25.81	+0.0
March	-18.22	-17.44	-19.74	+2.3	September	+25.43	+25.13	+24.94	+0.5
April	-2.92	-1.68	-2.07	+0.1	October	+7.44	+7.12	+7.65	-0.5
May	+15.64	+15.87	+17.52	-1.6	November	-11.60	-11.46	-15.12	+3.3
June	+35.11	+35.67	+34.61	+1.7	December	-35.63	-33.75	-31.45	-2.6
					Mean	+1.35	+2.02	+2.02	0.67

The differences between the observed and computed mean monthly temperatures are greatest in winter, which is due to the greater fluctuations of the temperature in that season. The same result was found from my reduction of the Van Rensselaer Harbor temperatures, as observed by Dr. Kane. The average probable error of representation of the mean temperature of any one month is accordingly $\pm 2°.1$, and of the result for the mean annual temperature $\pm 0°.6$.

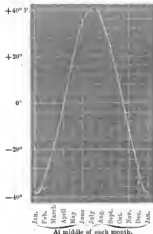
The following table contains the temperature of the several seasons at Port Kennedy; December, January, and February being reckoned as winter months (and so on for the other seasons), in accordance with meteorological usage. The results by Formula II refer to the corrected normal months; the results headed "by observation," are corrected for index error.

MEAN TEMPERATURES OF THE SEASONS.							
AT PORT KENNEDY, LAT. 72° 1', LONG. 94° 14'.				AT VAN RENSSELAER HARBOR, LAT. 75° 27', LONG. 76° 53'.			
Season.	By observa- tion.	By Form. II.		Season.	By observa- tion.	By Form. II.	
Winter	-35°.04	-34°.23	*	Winter	-28°.59	-29°.1	
Spring	-2.04	-1.43		Spring	-10.59	-6.8	
Summer	+37.40	+37.25		Summer	+33.18	+33.5	
Autumn	+7.69	+6.49		Autumn	-4.03	-4.4	
Year	+1.55	+2.02	+0°.6	Year	-2.46	-2.29	+0°.7

The corresponding values at Van Rensselaer Harbor have been inserted for comparison, and show a remarkable difference in the temperatures of spring and autumn, at which seasons it was much colder at Van Rensselaer Harbor than at Port Kennedy, whereas the mean winter temperature was lowest at Port Kennedy. The observations give the range between the summer and winter mean at Port Kennedy 72°.4, and at Van Rensselaer Harbor 62°.0. According to Formula II, we find, as a close approximation, the warmest day July 20th, with $T = +41^{\circ}.0$, and the coldest day January 19th, with $T = -38^{\circ}.4$; hence, the range of the annual fluctuation 79°.4. The mean temperature of the year is reached on April 22d and October 22d.

The annual fluctuation of the temperature, or the observed and computed monthly (normal) means (corrected for index error), are represented in the annexed diagram (A). The curve shows the computed, and the dots the observed, temperature.

(A.) ANNUAL FLUCTUATION OF THE TEMPERATURE OF THE AIR AT PORT KENNEDY.



By means of Table I, we can make the following combinations of mean temperatures of the seasons of the year at different localities, which tabular numbers and combinations may be useful in future investigations of the course of the monthly isothermal-lines, and of the isotherms of the several seasons.

Year.	Season.	North latitude.	West longitude.	Mean temperature.	Corrected for index error.
1857	Autumn	75°.3	67°.3	+ 6°.82	+ 6°.74
1857-8	Winter	73.0	64.0	-20.19	-20.79
1858	Spring	68.0	56.8	+11.53	+11.47
1858	Summer	74.0	76.0	+35.70	+35.70

The last three (but one) columns of Table I, exhibit the observed monthly maxima and minima of the temperature, and the extreme monthly range. These numbers are only relative, since the absolute extremes were not found recorded.

The highest temperature observed near Port Kennedy was +55°.0, on July 29th, 1859, and the lowest, -49°.8 (the index correction having been applied), on January 21st, 1859, and February 15th and 18th, 1859. Extreme range recorded at the winter quarters of the "Fox," 104°.8 of Fahrenheit's scale. To compare with the above numbers, Dr. Kane recorded at Van Rensselaer Harbor a maximum temperature of +51°.0, on July 23d, 1854, and a minimum temperature of -66°.4, on February 5th, 1854, and of -65°.5, on January 8th, 1855; observed absolute range 117°.4 Fahr., exceeding the Port Kennedy range by 12°.6.

The monthly range is greatest in March and April and in October and November; its value may be set down as 52° at Port Kennedy. This range is least in December and January and in July and August, when it does not exceed 27°. The extreme monthly range occurred in April, 1858 (viz., 64°), and in August, 1859 (viz., 17°).

Diurnal Variation of the Temperature.

The material collected in Table II furnishes the basis for the discussion of the diurnal fluctuation of the temperature. The hourly means (at certain observing hours) recorded there do not present the true daily fluctuation of the temperature in each month, on account of the disturbing effect of the annual change during the interval of a day, an effect which cannot be neglected in a locality where the annual fluctuation amounts to the excessive quantity of 79°.4. The tabular numbers, therefore, must first be cleared of this disturbing effect. This is best done by computing, by means of our expression for T , the change of the annual variation in a day for the middle of each month, and by correcting the means for the hours 0 A. M. and 12 P. M. by one half of this change, with opposite signs. There is no correction for noon, and a proportional one for the intermediate hours between morning and noon, and between noon and midnight; the signs in the second interval being the reverse from those in the first. The diurnal fluctuation during the long arctic night is so small as to be almost effaced by the overpowering effect of the annual fluctuation during a day.

Confining our attention for the present to the diurnal variation of the tempera-

ture in each month at Port Kennedy, we find an anomaly in the table of results in April, May, and June, 1859, when the symmetry of the observing hours is interrupted by observations being taken at 6 A. M. and 11 P. M. To remedy this defect, I have first established an approximate equation of the diurnal variation, and, by means of it, computed the difference between the mean at 4^h and 5^h, and also between 11^h and 12^h. These differences were applied respectively to the mean for 5^h and to the mean for 11^h, which gave the deduced means for 4^h and 12^h.

The maximum corrections for diurnal effect of the annual change occur at midnight, and are as follows:—

In January	0°.00	In July	0°.00
February	—0.15	August	+0.14
March	—0.26	September	+0.25
April	—0.32	October	+0.32
May	—0.39	November	+0.33
June	—0.22	December	+0.20

At 0^h A. M., the corrections are the same with the sign reversed; at noon, they are zero; at intermediate hours, proportional values were applied. The monthly mean is left unchanged (or very nearly so).

For August, I have combined the means of August, 1858 and 1859.

Accordingly, we have the following table of the diurnal variation of the temperature for each month of the year:—

TABLE IV.—DIURNAL VARIATION OF THE TEMPERATURE AT PORT KENNEDY.												
	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Noon.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Mean.
January	—37.78	—34.26	—33.96	—33.97	—33.52	—33.31	—33.55	—33.26	—32.85	—33.10	—33.11	—33.78
February	—36.82	—36.23	—36.25	—35.83	—35.34	—35.25	—35.27	—35.86	—36.37	—36.16	—36.16	—36.74
March	—30.95	—30.43	—29.44	—29.57	—28.75	—28.89	—29.07	—30.55	—31.56	—31.20	—31.71	—29.32
April	..	—4.25	..	—2.17	..	+1.25	..	+0.50	..	—4.28	..	—5.70
May	..	+12.36	..	+16.69	..	+18.81	..	+15.11	..	+14.68	..	+17.65
June	..	+31.94	..	+38.11	..	+39.72	..	+36.80	..	+33.73	..	+39.10
July	+39.51	+37.24	+35.34	+33.25	+32.50	+32.48	+32.54	+31.08	+30.07	+28.02	+26.56	+36.58
August	..	+34.16	..	+32.55	..	+30.68	..	+26.63	..	+23.51	..	+34.68
September	..	+24.69	..	+24.65	..	+26.45	..	+26.91	..	+25.81	..	+24.78
October	..	+7.31	..	+7.27	..	+9.03	..	+7.65	..	+7.47	..	+6.83
November	—11.79	—11.41	—10.76	—10.43	—10.68	—10.32	—11.62	—11.47	—11.31	—11.30	—11.91	—12.25
December	—22.07	—22.54	—22.70	—23.39	—22.81	—22.81	—22.71	—23.12	—23.17	—23.22	—23.25	—23.69

For the purpose of making full use of all the bi-hourly observations, it was thought advisable to express the values for the months of April, May, June, and August, September, October, analytically, and to supply by interpolation values for the hours 2, 6, 10, A. M and P. M. The values thus computed were derived from the following expressions, in which the angle θ counts from midnight, and is reckoned at the rate of 15° an hour:—

For April,	$t = -2^{\circ}.54 + 3^{\circ}.67 \sin (\theta + 255^{\circ}) + 6^{\circ}.70 \sin (2\theta + 27^{\circ})$
" May,	$t = +15.16 + 4.09 \sin (\theta + 255^{\circ}) + 0.24 \sin (2\theta + 257^{\circ})$
" June,	$t = +25.17 + 4.65 \sin (\theta + 267^{\circ}) + 0.50 \sin (2\theta + 181^{\circ})$
For August,	$t = +35^{\circ}.57 + 1^{\circ}.32 \sin (\theta + 228^{\circ}) + 0^{\circ}.18 \sin (2\theta + 142^{\circ})$
" September,	$t = +25.47 + 1.39 \sin (\theta + 213^{\circ}) + 0.31 \sin (2\theta + 55^{\circ})$
" October,	$t = +7.59 + 6.71 \sin (\theta + 258^{\circ}) + 0.35 \sin (2\theta + 80^{\circ})$

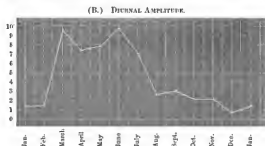
The following table (IV, *b*) contains the interpolated values, by the insertion of which Table IV will be rendered complete :—

	2 nd A. M.	6 th	10 th	2 nd P. M.	6 th	10 th	Mean.
April	— 37.46	— 37.60	— 67.31	+ 17.72	— 17.90	— 25.53	— 27.54
May	+ 11.03	+ 14.33	+ 17.53	+ 18.97	+ 16.45	+ 12.58	+ 15.16
June	+ 20.23	+ 24.96	+ 29.65	+ 28.53	+ 23.42	+ 22.05	+ 25.17
August	+ 34.21	+ 34.58	+ 36.15	+ 36.79	+ 36.54	+ 35.33	+ 35.57
September	+ 24.54	+ 24.05	+ 25.51	+ 24.99	+ 25.39	+ 25.37	+ 25.47
October	+ 7.08	+ 7.10	+ 8.29	+ 8.54	+ 7.40	+ 7.13	+ 7.59

The two preceding tables furnish the following values for the amplitude of the diurnal fluctuation in each month of the year, also in each season, and for the whole year, together with the hours of maximum and minimum temperature, and the hours when the mean temperature is reached, for each of the periods.

Month.	Maximum.	Minimum.	Range.	Hour of max.	Hour of min.	Critical int.
January	—32.85	—34 th .56	1 st .41	6 P. M.	4 A. M.	10 th
February	—35.29	—36.74	1.45	Noon	Midn ^{ht}	12
March	—11.59	—21.44	9.55	Noon	6 A. M.	8
April	+ 1.72	— 5.79	7.52	2 P. M.	Midn ^{ht}	14
May	+ 18.37	+ 11.03	7.34	2 P. M.	2 A. M.	12
June	+ 39.45	+ 30.25	9.60	10 A. M.	2 A. M.	8
July	+ 41.48	+ 36.53	4.97	Noon	2 A. M.	10
August	+ 36.79	+ 34.16	2.63	2 P. M.	4 A. M.	10
September	+ 25.99	+ 24.05	2.94	2 P. M.	6 A. M.	8
October	+ 8.63	+ 6.85	2.18	Noon	Midn ^{ht}	12
November	+ 10.66	—12.25	2.17	10 A. M.	Midn ^{ht}	10
December	—34.54	—33.38	0.84	4 A. M.	8 A. M.	—4

The annexed diagram (B) exhibits the monthly values of the diurnal range :—



The autumn and winter months have a range of less than 3°, whereas the months of March to July exhibit two and a half times that amount. The maximum value was observed in June, amount 9°.60; the minimum value occurred in December, value 0°.14. For comparison, I may add that the corresponding values at Van

Rensselaer Harbor occurred in April, amount $9^{\circ}.09$, and in November, amount $1^{\circ}.00$; showing a correspondence in amount but not in time. The diurnal variation never disappears altogether, and even during the long arctic night there appears to be a daily propagation or existence of a thermal wave producing a range of about 1° . The amount of the amplitude changes tolerably regular from month to month; the high value in March, however, either presents a distinct feature or is due to some anomaly. Altogether, the curve indicates no secondary maximum, such as was found in September at Van Rensselaer Harbor.

On the average, the maximum temperature is reached between noon and 1 P. M., and the minimum between 2 and 3 A. M.; whereas, at Van Rensselaer Harbor, these hours were respectively 2 P. M. and 1 A. M.

The following table contains the hourly values of the diurnal variation for each season and the whole year:—

TABLE VI.—DIURNAL VARIATION IN EACH SEASON.												
Season.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Noon.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Mean.
Winter	-54.33	-34.34	-24.31	-14.47	-34.06	-33.79	-33.54	-34.08	-34.10	-34.16	-34.14	-34.16
Spring	-5.07	-4.43	-3.44	-1.62	0.24	2.72	2.67	1.53	1.54	3.30	4.22	1.73
Summer	+33.66	+34.45	+36.52	+38.28	+36.63	+30.59	+36.22	+38.49	+37.61	+36.67	+36.31	+34.05
Autumn	+6.60	+6.66	+6.50	+7.16	+7.91	+6.30	+6.17	+7.76	+7.36	+7.10	+6.84	+6.53
Year	+0.21	+0.66	+1.28	+2.33	+3.38	+4.33	+4.10	+3.45	+2.37	+1.68	+0.68	+0.21
Same by formula	+0.10	+0.40	+1.30	+2.42	+3.43	+4.33	+4.09	+3.32	+2.42	+1.72	+0.66	+0.20
Difference	+0.11	+0.09	-0.02	-0.09	-0.05	0.00	+0.02	+0.17	+0.06	+0.14	0.00	+0.06

The computed diurnal variation for the whole year is derived from the expression given below. Comparing the means as stated above with corresponding values derived in the preceding discussion of the mean temperature of the seasons, we may add to each horizontal line the following corrections: to values for winter, $-0^{\circ}.05$; for spring, $+0^{\circ}.30$; for summer, $+0^{\circ}.29$; for autumn, $-0^{\circ}.78$; for the year, $-0^{\circ}.06$. These differences arise from changes in the observing hours, and consequent necessity of interpolation.

TABLE V (3).						
Season.	Maximum.	Minimum.	Range.	Hour of max.	Hour of min.	Critical lat.
Winter	-33°.79	-34°.54	0°.75	Noon	Midn't	12°
Spring	+2.67	-6.16	8.06	3 P. M.	Midn't	10
Summer	+36.99	+33.66	3.33	Noon	2 A. M.	14
Autumn	+8.36	+6.53	1.85	Noon	Midn't	12
Year	+4.33	+0.21	4.12	Noon	1 A. M.	13
By formula	+4.33	+0.09	4.25	09 25 ^m P. M.	1 ^h 35 ^m A. M.	13° 10'

The mean temperature of the day is reached at $7^{\text{h}} 24^{\text{m}}$ A. M. and at $6^{\text{h}} 56^{\text{m}}$ P. M., by formula. The diurnal variation of the temperature during the whole year is represented by the formula:—

$$t = +2^{\circ}.08 + 3^{\circ}.02 \sin (\theta + 252^{\circ} 57') + 0^{\circ}.25 \sin (2\theta + 117^{\circ}) + 0^{\circ}.09 \sin (3\theta + 251^{\circ}).$$

If we supply the constant term, and change the epoch from noon to midnight, as in the above expression, the diurnal variation at Van Rensselaer Harbor has been represented by

$$t = -2^{\circ}.91 + 1^{\circ}.85 \sin (\theta + 244^{\circ} 55') + 0^{\circ}.68 \sin (2\theta + 97^{\circ}) + 0^{\circ}.03 \sin (3\theta + 308^{\circ}),$$

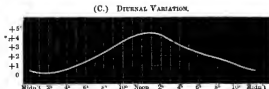
which is here added for comparison.

In either expression, the constant term might be omitted, as not essential in the inquiry of the diurnal fluctuation; or the values $+2^{\circ}.02$ and $-2^{\circ}.20$, which are the true mean annual temperatures respectively, might be substituted in their place.

The maximum and minimum value is given by the formula:—

$$o = +2^{\circ}.02 \cos (\theta + 253^{\circ} 57') + 0^{\circ}.51 \cos (2\theta + 117^{\circ}) + 0^{\circ}.28 \cos (3\theta + 251^{\circ}).$$

The following diagram (C) exhibits the diurnal variation during the whole year:—



Hourly Corrections for Periodic Variations.—Under this head, a number of tables have been given by Prof. Guyot in his meteorological and physical tables, prepared for the Smithsonian Institution. These tables furnish the means of correcting other incomplete material at stations in the vicinity. A similar table was prepared by me for Van Rensselaer Harbor. The following table for Port Kennedy is directly derived from the values in Table II, in connection with Tables IV and IV (b). For those hours requiring interpolation in the latter case, the small corrections for the effect of the annual change during a day has again been deducted.

ARCTIC AMERICA.—PORT KENNEDY, LAT. 72° 01' N., LONG. 94° 14' W. OF GREENWICH.												
CORRECTIONS TO BE APPLIED TO ANY BI-HOURLY OR SET OF BI-HOURLY OBSERVATION TO OBTAIN THE MEAN TEMPERATURE OF THE DAY.												
Degrees of Fahrenheit's scale.												
Hour.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
2 A. M.	+0.24	+0.61	+3.28	+3.16	+4.41	+5.12	+3.62	+1.23	+0.74	+0.22	+0.24	-0.65
4	+0.72	+0.29	+3.22	+2.42	+3.63	+3.39	+2.99	+1.31	+1.21	+0.05	-0.09	-0.56
6	+0.63	+0.29	+3.79	+1.45	+1.01	+0.34	+0.89	+0.91	+1.28	+0.31	-0.66	-0.37
8	+0.63	-0.12	+1.67	-0.24	-1.33	-2.86	-1.16	+0.16	+0.78	+0.20	-0.96	-0.35
10	-0.02	-0.23	-2.69	-2.15	-2.35	-4.61	-2.77	-0.61	-0.09	-0.77	-1.26	-1.59
Noon	-0.23	-0.78	-5.89	-3.76	-3.62	-4.63	-3.35	-1.12	-0.59	-1.46	-0.97	-0.16
2 P. M.	+0.01	-0.78	-6.75	-4.28	-3.83	-3.38	-2.21	-1.21	-1.49	-0.92	-0.22	-2.02
4	-0.58	-0.21	-6.61	-3.11	-2.02	-1.73	-1.85	-1.03	-1.37	+0.62	+0.28	-0.21
6	-0.60	+0.25	+0.65	-0.77	-1.41	-0.34	-0.94	-0.71	-0.80	+0.33	+0.58	-0.30
8	-0.44	+0.04	+1.44	+1.58	+0.93	+1.26	+0.11	-0.27	-0.17	+0.31	+0.88	-0.38
10	-0.43	-0.07	+1.74	+2.75	+2.35	+2.68	+1.37	+0.25	+0.19	+0.71	+0.94	+0.43
Midn't	+0.24	+0.66	+2.86	+2.87	+3.54	+4.47	+3.15	+1.62	+0.73	+1.04	+1.28	+0.32
6, 6	-0.13	+0.27	+2.22	+0.34	-0.20	0.00	-0.02	+0.10	+0.24	+0.22	-0.06	-0.03
8, 8	0.00	-0.04	+1.55	+0.66	-0.19	-0.50	-0.52	-0.05	+0.31	+0.25	-0.04	+0.17
10, 10	-0.22	-0.15	-0.62	+0.30	0.00	-0.81	-0.66	-0.13	+0.05	-0.07	-0.16	-0.18
6, 2, 10	0.00	-0.19	-0.07	-0.03	-0.16	-0.02	+0.08	+0.02	-0.01	+0.03	+0.01	-0.06

Owing to the fact that the observations extend over one year only, the table, in some instances, must necessarily contain some small irregularities. The closest results are obtained from the hours 6, 2, 10, which was also the case at Van Rensselaer Harbor.

Connection of the Lunar Phases with Low Winter Temperatures.

The apparent connection of the lunar phases with the observed temperature of the air during the Arctic winter, the thermometer being below the zero of Fahrenheit's scale, was long ago noticed by Arctic explorers, and was again independently observed by Dr. Kane, in the discussion of whose observations I have attempted an explanation of the phenomenon. In that paper, the connection of the lunar phases with the serenity of the sky and the fall of snow was also discussed; for the observations now on hand, the numerical relations alone will be represented.

Dividing the daily means of the temperature into penthemers (or periods of five days), a table was formed showing the time of full and new moon and the mean temperatures; and, by means of differences of the alternate means at these periods, the amount by which the mean temperature is lower at full moon than at new moon is exhibited in column headed Δ .

FIRST WINTER, 1857-'58. RAFFIN BAY.					SECOND WINTER, 1858-'59. PORT KENNEDY, BELLOT STRAIT.						
Between lat. 74°.S, long. 69°.E and lat. 69°.S, long. 69°.E.					Lat. 72°.S, long. 94°.E.						
Penthemer.	Moon's phase.	Temp.	Alt. means.	Δ	Penthemer.	Moon's phase.	Temp.	Alt. means.	Δ		
Nov. 23-27		-27.8	-25.7	(-6°.7)	Nov. 2-6	5th \bullet	-7.5				
28-32	1st \circ	-27.0			7-11		-12.6				
Dec. 3-7		-25.1			12-16		-17.0				
8-12		-22.4			17-21	20th \circ	+4.7	-19.0	+23.7		
13-17	16th \bullet	-20.3			22-26		-23.9				
18-22		-19.9	-31.2	-8.4	27-31		-14.5				
23-27		-15.5			Dec. 3-6	8th \bullet	-30.6	-13.1	+17.6		
28-32	30th \circ	-24.4			7-11		-29.1				
Jan. 3-6		-19.8			12-16		-36.5				
7-11		-19.6			17-21	20th \circ	-30.9	-35.9	+3.0		
12-16	15th \bullet	-22.0	-29.0	-7.6	22-26		-38.9				
17-21		-23.2	-16.1	-18.7	27-31		-34.5				
22-26		-25.9			Jan. 1-5	4th \bullet	-37.1	-32.7	+4.4		
27-31	29th \circ	-34.5			6-10		-34.4				
Feb. 1-5		-21.8			11-15		-24.9				
6-10		-25.1			16-20	18th \circ	-34.4	-33.3	-1.1		
11-15	13th \bullet	-10.2	-19.2	-9.0	21-25		-38.9				
16-20		-8.7	-3.8	(+8.7)	26-30		-25.9				
21-25		-13.7			31-35	3d \bullet	-29.6	-37.3	-8.3		
26-30	27th \circ	-3.8			Feb. 5-9		-39.5				
Omitting the first and last (incomplete) values of Δ , we find its average value = -6°.8.					10-14		-34.1				
					15-19	17th \circ	-41.3	-26.7	-14.6		
					20-24		-35.8				
					25-29		-34.3				
					March 3-6	4th \bullet	-23.9	-33.8	-9.9		
					7-11		-16.3				
					12-16		-21.4				
					17-21	18th \circ	-26.8	-12.8	-13.7		
					22-26		-4.3				
					27-31		-11.7				
					April 1-5	3d \bullet	-1.1	...	(-25.1)		
					6-10		-12.0				
The temperature between Nov. 17-21 is anomalous, and affects also the following value (17.5) of Δ ; these values, as well as that of April 1-5, have been omitted in the mean. For the period Nov. 17-21, the wind was N. E.; weather misty, with occasional snow, and variable.											
Average Δ , winter 1858-'59 = -5°.7.											

The average fall of the temperature for the period from new moon to full moon, from the above comparisons, is $7\frac{1}{2}^{\circ}$. The separate results may, perhaps, not appear as conclusive as those obtained at Van Rensselaer Harbor (lat. $78^{\circ}.6$); still, the general deduction is confirmed. The following account of the weather for each day, the day preceding and the day following, of the full and new moon, is copied from the record and refers to noon. Beaufort's signification of letters is used.

Full Moon.						New Moon.					
1857	Dec. 1	. . .	b. v.	b. v.	b. v.	1857	Dec. 16	. . .	b. v.	b.	b. m.
	Dec. 20	. . .	m. s.	b. v.	b. e.		Dec. 20	. . .	b. e.	m.	m. s.
1858	Jan. 22	. . .	b.	b. e.	b. e.		Jan. 22	. . .	b. e.	b. e.	b. s.
	Feb. 27	. . .	s. m. s.	b. e.	b. e.		Feb. 27	. . .	b. e.	b. e.	b. s.
1858	Nov. 20	. . .	s. m.	m. o. s.	e. m.	1858	Nov. 5	. . .	b. m. s.	b. m.	b. e. m.
	Dec. 20	. . .	b. v. m.	b. m. s.	b. m. s.		Dec. 5	. . .	b. s.	m.	b. e.
1859	Jan. 16	. . .	m. s.	b. m.	b. m.		Jan. 16	. . .	b. e.	b. e. s.	b. m. s.
	Feb. 17	. . .	b. m.	m. s.	b. m.		Feb. 17	. . .	m.	b. e.	b. e. s.
	Mar. 18	. . .	b. s. s.	b. s.	b. m.		Mar. 18	. . .	m.	b.	b. e.
							April 3	. . .	b.	b. e.	b. s.
b stands for blue sky.						m stands for misty, hazy.					
s " overcast.						v " visibility, transparency.					
s " snow drift.						e stands for clouds, detached.					
						s " snow.					

In the first winter, the weather appears to have been finer and clearer at full moon; whereas, in the second winter, there is little or no difference, a misty weather and snow drifts characterizing the locality; under these circumstances, the lunar effect could hardly be expected to show itself as distinctly as brought out above. Captain McClintock makes the following remark (page ix of the 4th number of meteorological papers published by the Board of Trade): "The dense and continued mist over Bellot Strait, caused by considerably warmer water than the air above it, and the strong local winds, perhaps partly caused by this speedy evaporation and condensation, are special features."

No recurrence of cold was noticed, either in 1858 or in 1859, about May 11th—the period Dove has called attention to.

Temperature of the Winds.—To ascertain the elevating or depressing influence of the various winds on the temperature, the following method of investigation was adopted:—

The normal temperature of each day was made out by taking the mean of the temperature of that day, the two preceding and the two following days. The observed temperature at the hours 6 A. M. and 6 P. M., and at noon and midnight, were then compared with the respective normal temperature (the mean of five days); the differences thus obtained were tabulated according to one of the eight winds (or calm) N., N.E., E., S.E., etc., blowing at the respective hours. The mean difference for each wind, and for a period extending over a season, very nearly indicates the elevating or depressing influence of each wind, and at each season, on the temperature of the air. The + sign indicate warmer, the — sign colder, than the average. The diurnal variation being generally small, and in the absence of any regularity of a certain wind blowing regularly at certain hours, the effect of

this variation will disappear in the resulting average values. In the exceptional case when no observations are recorded at 6 A. M. and P. M., the mean of observations at 4 and 8 A. M. and P. M. were substituted. For notes referring to the observations of the winds, see the record or Part II of this discussion. The directions of the wind are "true." This method of investigation is less laborious than that followed by me in a similar discussion of the temperature of the various winds at Van Rensselaer Harbor.

All results in Baffin Bay have been united, and a second group has been formed from the observations at Port Kennedy.

The seasons and localities for Baffin Bay, for which results were deduced, are as follows:—

Season.	Months.	Between latitudes		Between longitudes	
Autumn—Sept., Oct., Nov., 1858 . . .		75° 3	74° 8	65° 0	and 69° 1
Winter—Dec., 1858, Jan., Feb., 1859 . . .		74.3	71.5	67.4	60.9
Spring—March, April, May, 1859 . . .		69.4	68.7	59.1	53.7
Summer—June, July, August, 1859 . . .		74.6	73.1	60.1	68.5
Mean		72° 5 N.		65° 8 W.	

This average position is nearly in the middle of Baffin Bay.

ELEVATING OR DEPRESSING EFFECTS OF THE WINDS ON THE TEMPERATURE OF THE AIR.										
+ warmer, — colder, than the mean temperature.										
	Calm.	N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.	Mean.
Autumn 1857	—5°.8	—0°.3	+3°.1	+1°.6	+4°.1	+0°.7	—2°.6	—1°.2	+0°.3	
Winter 1857-8	—1.5	—0.1	—0.3	—1.0	+0.5	—0.4	—2.4	—0.2	+1.3	
Spring 1858	+0.7	—1.5	+1.0	+1.5	+5.5	+2.5	—0.7	—0.3	—2.9	
Summer 1858	+0.5	0.0	+0.5	—0.5	—0.5	+0.5	0.0	+0.3	—0.5	
Mean	—1.0	—0.5	+1.1	+0.4	+3.3	+0.0	—1.4	—0.4	—0.5	+0°.2
Result for year	—1.3	—0.7	+0.5	+0.3	+3.1	+0.6	—1.6	—0.5	—0.7	

The results in the last line, obtained after deducting 0°.2 from the preceding line, show that the S. E. winds are the warmest, and the S. W. winds the coldest; also, that during calms the temperature is lower. At Van Rensselaer Harbor, the depressing effect of the calms amounted to 3°.4.

The following table shows the results for Port Kennedy:—

	Calm.	N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.	Mean.
Autumn 1858	+2°.4	+3°.9	+1°.3	+5°.7	+2°.4	+0°.5	+1°.0	—1°.7	—1°.5	
Winter 1858-5	—0.6	+2.0	—0.5	+2.3	—	—	+2.2	+0.2	—0.6	
Spring 1859	—0.4	+0.4	+0.3	+0.5	—	—	—	—	—1.2	
Summer 1856	—0.8	—0.4	—0.3	+0.5	—1.2	—1.3	+0.3	+0.4	—0.2	
Mean	+0.1	+0.7	+0.2	+1.5	+0.5	+1.5	+1.5	—0.4	—1.0	+0°.5
Result for year	—0.5	+0.2	—0.3	+1.3	+0.1	+1.0	+0.5	—0.5	—1.5	

The results for winds from the S. E., S., and S. W. are not very reliable, on account of the scarcity of wind from these directions. At Port Kennedy, the E. winds are the warmest and the N. W. the coldest; during calms, the mean tem-

perature is depressed $0^{\circ}.5$. The local configuration of the land, and the peculiar situation of the port, may possibly affect the results deduced.

The following recapitulation of results shows a tolerably fair agreement between the localities—middle of Baffin Bay, Van Rensselaer Harbor,¹ and Port Kennedy.

True direction of wind.	Baffin Bay.	Van Rensselaer Harbor.	Port Kennedy.
	Lat. $72^{\circ}.5$ N. Long. $61^{\circ}.5$ W.	Lat. $72^{\circ}.4$ N. Long. $70^{\circ}.9$ W.	Lat. $72^{\circ}.5$ N. Long. $94^{\circ}.3$ W.
N.	— $0^{\circ}.8$	— $1^{\circ}.4$	+ $0^{\circ}.1$
N. E.	+ 0.7	0.0	— 0.4
E.	+ 0.1	— 0.1	+ 1.2
S. E.	+ 2.0	+ 0.9	+ 0.1
S.	+ 0.4	+ 0.6	+ 1.0
S. W.	— 1.7	+ 0.4	+ 0.5
W.	— 0.9	+ 0.1	— 1.0
N. W.	— 0.8	— 1.4	— 1.5

(The positive and negative values have been made to balance, after omitting the value for the calms.)

Counting θ from the north (or belonging to a true north wind), in the direction east, south, etc., to 360° , the above tabular numbers can be expressed by the formulae—

	Lat.	Long.	
Middle of Baffin Bay,	$72^{\circ}.5$	$65^{\circ}.8$	$T = +1^{\circ}.5 \sin (\theta + 338^{\circ}) + 0^{\circ}.8 \sin (2\theta + 115^{\circ})$
Van Rensselaer Harbor,	72.6	70.9	$T = +1.0 \sin (\theta + 296^{\circ}) + 0.3 \sin (2\theta + 335^{\circ})$
Port Kennedy,	72.0	94.3	$T = +0.9 \sin (\theta + 290^{\circ}) + 0.4 \sin (2\theta + 26^{\circ})$

The second terms are of subordinate value; the first, or significant terms, correspond upon the whole very close, considering the peculiarity of each station, in reference to free exposure to the various winds.

From the 4th number of the meteorological papers published by the Board of Trade in 1860, I extract the following remark of Captain McClintock's: "The Danish settlers at Upernavik, in Northwest Greenland, are at times startled by a sudden rise of temperature during the depth of winter, when all nature has been long frozen; rain sometimes falls in torrents. It is called the warm southeast wind." In reference to a warm northwest wind in Upper Baffin Bay, alluded to in the same paper (p. iv), the above table for that locality shows that, although this wind is warm in winter, it is considerably colder in spring, and also colder, on the average, for the whole year.

Temperature of the Soil.—The following is copied from p. 309 of the record: "On 14th September, 1858, as soon as it appeared probable that we should winter at Port Kennedy, I sunk a brass tube two feet two inches vertically in the ground, and inserted a padded thermometer. The ground, at time of sinking the tube, was frozen from six inches below the surface, and it was with great difficulty I could get the tube sufficiently far down. The surface soil was similar to that

¹ See results given on page 111 of my discussion of Dr. Kane's meteorological observations, Vol. XI of the Smithsonian Contributions to Knowledge. As explained elsewhere (and confirmed by Mr. Sonntag and Dr. Hayes), the true direction of the wind was actually observed at Van Rensselaer Harbor; hence, the results given in the paper cited above required a corresponding change.

strewn over the land, but from below six inches it was of a yellowish mud. The thermometer used was one of very small bore, with a long stem finely graduated (it had been prepared for taking temperatures of trees). From 18th to 29th September, 1858, no register was made, as the ship was not in port; also from 18th to 28th March, 1859, as I was absent from the ship travelling. The minimum temperature registered was $+0^{\circ}.5$, on March 10th, 1859; the lowest may be assumed as at zero, on March 16th. The register was continued until June 18th, when water entered the tube, and the thermometer was frozen to the side so that it could not be detached. Column No. 1 gives the register of this thermometer. Column No. 2 gives the depth of overlaying snow, which was always greater than the average on the land. On 17th January, 1859, a tube was placed one foot one inch deep in a mixture of shingle and earth; in this a thermometer was placed. The position of the ground was such that scarcely any snow lay upon it, the strong wind constantly blowing removing it almost as soon as deposited. Column No. 3 is the register of this thermometer. February 12th, 1859, a tube was placed horizontally on the surface of the ground, beneath the snow lying on the ground, where thermometer No. 1 was sunk. The temperature as shown by this thermometer (Column No. 4) was registered until the snow all disappeared. Column No. 5 gives the mean temperature of the air for the day on which the registers of the different thermometers were taken. Column No. 6 gives the mean temperature of the air for the number of days or hours intervening between the registers of the thermometers. All the temperatures of the different thermometers are corrected so as to reduce them to the standard of the air thermometer, comparisons having previously been made as opportunity offered."

(Signed)

DAVID WALKER.

Date.	No. 1.	No. 2.	No. 2.	No. 4.	No. 5.	No. 8.
1856						
Sept. 30	39°.4	..	..	..	+24°.2	
Oct. 1	29.9	..	..	..	+25.4	Between Sept. 30 and Oct. 1 = +24°.2
" 4	25.5	8	..	..	+22.3	" " 4 " 7 = +25.7
" 7	27.9	8	..	..	+13.6	" " 7 " 9 = +22.2
" 9	26.3	6	..	..	-1.2	" " 9 " 13 = +9.9
" 13	24.1	7	..	..	-0.7	" " 13 " 17 = +7.9
" 16	22.4	7	..	..	+16.5	" " 17 " 19 = 0.0
" 19	21.2	6	..	..	+4.1	" " 19 " 23 = +9.2
" 23	20.2	10	..	..	-0.8	" " 23 " 28 = +3.2
" 26	19.4	19	..	..	-2.0	" " 28 " 30 = -0.4
Nov. 6	17.8	42	..	..	-0.6	Nov. 6 " 24 = 2.4
" 12	16.3	42	..	..	-9.2	" " 24 " 13 = -10.7
" 20	14.9	56	..	..	-13.8	" " 13 " 20 = -7.6
" 27	14.1	67	..	..	-23.4	" " 20 " 27 = -16.9
Dec. 4	13.9	69	..	..	-38.4	" " 27 " 4 = -16.4
" 11	12.9	83	..	..	-35.9	" " 4 " 11 = -28.8
" 16	10.9	61	..	..	-33.4	" " 11 " 16 = -36.7
1857						
Jan. 1	6.1	80	..	..	-39.2	" " 16 Jan. 1 = -34.9
" 8	8.9	69	..	..	-34.7	" " 8 " 8 = -36.8
" 14	8.4	66	-18°.7	..	-28.3	" " 8 " 18 = -28.9
" 21	..	..	-23.7	..	-42.2	" " 18 " 21 = -35.4
" 27	4.4	72	-22.2	..	-25.6	" " 21 " 27 = -37.9
Feb. 1	..	..	-24.7	..	-33.3	" " 27 Feb. 1 = -32.1
" 12	2.9	72	-23.7	..	-22.7	" " Feb. 1 " 12 = -34.1
" 17	..	..	-25.2	..	-36.9	" " 12 " 17 = -35.6
" 26	1.9	68	-25.7	-3°.0	-34.2	" " 17 " 26 = -37.4
March 4	..	..	-22.7	..	-22.2	" " 26 Mar. 4 = -32.1
" 10	0.9	72	-14.4	-3.9	-23.4	" " March 4 " 10 = -17.0
" 20	0.9	70	-10.9	-3.7	-15.4	" " 10 " 26 = -17.8
April 2	..	..	-12.4	..	+2.0	" " 26 April 2 = -10.9
" 7	1.1	79	-10.9	-1.2	-10.6	" " April 2 " 7 = 3.5
" 12	..	..	-12.9	..	-16.3	" " 7 " 12 = -12.3
" 18	1.4	77	-11.9	+0.9	-1.1	" " 12 " 18 = -14.1
" 23	1.9	78	-0.9	+1.3	-0.2	" " 18 " 23 = +9.0
" 26	..	..	-5.0	..	-1.5	" " 23 " 26 = -3.7
" 30	2.2	84	-3.0	+2.3	+16.4	" " 26 " 30 = +5.9
May 7	2.8	92	-3.0	+3.7	+4.1	" " 30 May 7 = +5.6
" 10	..	..	+3.9	..	+11.3	" " May 7 " 10 = +7.0
" 14	3.1	73	+8.9	+4.9	+29.4	" " 10 " 14 = +14.4
" 21	3.9	74	+11.9	+9.0	+17.6	" " 14 " 21 = +19.1
" 25	..	..	+14.0	..	+18.7	" " 21 " 25 = +17.1
" 29	4.3	71	+14.9	+8.4	+25.4	" " 25 " 29 = +22.7
June 4	4.9	70	+18.0	+7.7	+34.1	" " 29 June 4 = +26.9
" 11	10.1	84	+22.1	+31.3	+36.3	" " June 4 " 11 = +33.7
" 19	..	..	+22.3	..	+30.2	" " 11 " 19 = +37.4
" 18	frozen	26	+33.8	+32.3	+36.9	" " 19 " 18 = +40.1
" 24	frozen	16	+30.3	+32.1	+36.3	" " 18 " 24 = +34.8
July 1	frozen	0	+32.6	+34.9	+40.6	" " 24 July 1 = +36.8

The thermometer sunk two feet two inches, and the ground above covered with snow, gave its lowest indication on March 10th, when it reached $+0^{\circ}.5$, and may be assumed as having reached zero about March 16th. The temperature of the air was lowest about January 19th ($T = -38^{\circ}.4$); hence, the greatest cold of the soil at that depth occurred 57 days later. The thermometer sunk one foot one inch, and the ground free of snow, reached its lowest indication already on February 26th ($T = -25^{\circ}.7$); hence, 38 days later than the time of the lowest atmospheric temperature.

Temperature of the Surface of the Sea.—Frequent observations (at irregular hours of the day) were made for temperature of the surface of the sea, between July 2d, 1857, and September 12th, 1857. It suffices, however, to give an abstract of these observations, and the following record contains the maximum, minimum, and mean temperature observed each day. The observations were resumed April

18th, 1858, and continued till September 11th, 1858. They were again resumed August 21st, 1859. Some other observations will be given below. For the latitude and longitude, see preceding abstract.

TEMPERATURE OF THE SURFACE OF THE SEA.												
JULY, 1857.				AUGUST, 1857.				SEPTEMBER, 1857.				
Date.	Max.	Min.	Mean.	Date.	Max.	Min.	Mean.	Date.	Max.	Min.	Mean.	
1	..	..	..	1	46°	44°	44°.8	1	30°	29°	29°.5	
2	..	..	54°	2	44	44	44.2	2	31	29	30	
3	..	..	55.5	3	44	42	42.2	3	30	29	29.5	
4	..	..	56	4	49	38	42.3	4	32.5	29	29.7	
5	..	..	54	5	41	38	39.7	5	30.5	29	29.7	
6	55°	55°	55.4	6	43	37	29.5	6	29	28	28.5	
7	51	50	50.7	7	35	31	34	7	30	28	28.5	
8	50	50	50.8	8	37	30	32.7	8	30	29	29.2	
9	55	53	54	9	39	31	33	9	32	29	30.7	
10	54	53	53.3	10	36	30	32.3	10	32	30	31	
11	55	51	53	11	36	32	32.5	11	31	29.5	30.4	
12	51	47.5	49.5	12	35	28	32.7	12	30	28	28.3	
13	47	40	44.3	13	38	32	35	13	..	..	..
14	44	35	38	14	38	33	35.5	14	..	..	..
15	43	42	42.2	15	37	32	33.7	15	..	..	..
16	43	39	41.3	16	36	30	32.7	16	..	..	..
17	38	33	36.0	17	33	29	31	17	..	..	..
18	35	33	34.7	18	35	29	30.7	18	..	..	..
19	..	..	36	19	30	29	29.6	19	..	..	..
20	..	..	..	20	30	29	29.7	20	..	..	..
21	..	..	36	21	32	29	31	21	..	..	..
22	38	36	37.1	22	33	30	31	22	..	..	..
23	34	37	..	23	33	29	31	23	..	..	..
24	40	38	39	24	31	28	29.5	24	..	..	..
25	40	37	38.3	25	32	30	31	25	..	..	..
26	40	37	38.7	26	31	30	30.5	26	..	..	..
27	39	37	38.2	27	33	30	31.2	27	..	..	..
28	40	37	38.5	28	33	31	31.7	28	..	..	..
29	41	38	39.5	29	32	28	31	29	..	..	..
30	43	39	41.5	30	30	29	29.5	30	..	..	..
31	40	42	43.8	31	32	30	30.9					

NOTES.—JULY, 1857.				NOTES.—AUGUST, 1857.				NOTES.—SEPTEMBER, 1857.			
16th. Pack ice in sight.				24 and 3d. Many icebergs in sight.				5th. At 10 A. M.—			
17th. Sailing through the ice.				11th. Fast to a berg.				58 fathoms, temp. 29°.5			
18th. Berge and pack ice.				13th. At 1 P. M., temp. in shade,				50 " " 29.0			
23d. In harbor.				thermometer freely suspended,				25 " " 29.0			
25th. Surface temp. 36°, and at 130				46°; against iceberg, receiving its				Surface, 28.8			
fathoms depth 31°.5.				reflected rays, 53°; against ice-				13th. 26 icebergs in sight from			
28th-30th. Icebergs in sight.				berg in the sun, 63°; against a				sluft.			
				black surface in the sun, 82°.				34th. Temp. of sea at surface, 29°.			
				14th. Deep sea thermometer:—							
				At 114 fathoms, 30°							
				" 50 " 28.5							
				" 25 " 31.5							
				" surface 28							
				Frank water on berg, 32.2							
				15th. Temp. 3 feet in the iceberg,							
				29°.15; its surface, 27°.1; temp.							
				of the air 41°.5, at 5 A. M.							
				16th and 17th. Fast to a lee.							

NOTES.

1857	1858	1859
Nov. 9th. Temp. of sea surface, 28°.0	Mar. 10th. Temp. at 120 fath's 39°.5	April 7th. Temp. at 4 fath's 36°
1858	" 100 " 31.0	April 10th. " 120 " 34
Feb. 24. Temp. of sea surface, 28.5	" 8 " 29.0	" 4 " 30
" 23d. " " 29.0	Mar. 20th. " 90 " 34.0	April 14th. " 130 " 31
Temp. at 5 fath's 29.0	" 4 " 29.5	" 4 " 30.5
" 120 " 32.5	Mar. 29th. " 120 " 36.0	April 21st. " 110 " 31.2
March 1st. " 120 " 34.5	" 4 " 30.5	" 4 " 29.5
" 5 " 29.5	April 7th. " 110 " 34.0	

RECORD AND REDUCTION

TEMPERATURE OF THE SURFACE OF THE SEA.												
APRIL, 1858.				JUNE, 1858.				JULY, 1858.				
Date.	Max.	Min.	Mean.	Date.	Max.	Min.	Mean.	Date.	Max.	Min.	Mean.	
15	..	..	29° 0	1	32°	32°	32° 5	1	34°	31°	32° 0	
19	..	..	29° 0	2	35	33	33.7	2	32	31	31.5	
20	29°	28° 3	28.7	3	32	33	31.7	3	33	31	31.5	
21	29	28	29.0	4	33	32	32.7	4	32.2	31.3	31.8	
22	..	..	..	5	32.5	31	31.5	5	33	31	31.5	
23	..	..	29.3	6	32	31.5	32.0	6	32	30.5	31.2	
24	..	..	..	7	33	33	32.3	7	32	31	31.7	
25	..	..	29.3	8	33	32	32.7	8	31	31	31.0	
26	31	30	30.4	9	33	30.5	32.2	9	34	31	32.2	
27	31	29.5	30.2	10	32	31	31.6	10	32.3	31	31.9	
28	32	30	30.9	11	33	32	32.3	11	33	32	32.3	
				12	32	30	31.2	12	32	31	31.7	
				13	31.3	30	30.8	13	32	31	31.2	
				14	32	30	31.0	14	32	31	31.3	
				15	32	31	31.7	15	32	31	31.5	
				16	32	29	31.0	16	32.3	31	31.8	
				17	39	31	32.3	17	32.3	31	32.1	
				18	32	30	31.2	18	32.5	30	31.3	
				19	33	31	31.8	19	32.3	31	31.8	
				20	32	31	31.7	20	35	32	32.9	
				21	31	31	31.0	21	33	32	32.3	
				22	32	29	30.8	22	33	31	32.3	
				23	32	30	31.2	23	34	32	32.6	
				24	32	30.5	31.8	24	34	32	32.8	
				25	33	31	32.2	25	41	32	35.0	
				26	33	31	31.8	26	36	32	34.0	
				27	33	31	31.7	27	35	32	33.8	
				28	32.5	33	32.1	28	35	32.5	33.8	
				29	33	32	32.5	29	37	32	34.8	
				30	32	31	31.7	30	34	31	32.5	
								31	34	32	33.0	
MAY, 1858.												
Date.	Max.	Min.	Mean.									
5	..	..	29° 0									
9	..	..	28° 0									
10	..	..	28° 0									
11	..	..	28° 0									
29	40°	34°	36.2									
30	34	31	32.4									
31	33	31	31.5									
AUGUST, 1858.				SEPTEMBER, 1858.				SEPTEMBER, 1859.				
Date.	Max.	Min.	Mean.	Date.	Max.	Min.	Mean.	Date.	8 A. M.	8 P. M.	Mean.	
1	35°	33°	33° 8	1	29°	29°	29° 0	2	..	39° 0	39° 0	
2	35	33	34.0	2	29	29	29.0	3	38° 8	39.8	39.3	
3	34	32	33.2	3	30	28	29.2	4	40° 0	41.2	40.5	
4	37	32	33.7	4	29	28	29.0	5	41° 0	41.0	41.0	
5	35	31	33.2	5	29	28	29.0	6	41.5	42.0	41.7	
6	34	32	33.2	6	30	28	29.5	7	38.5	40.5	39.5	
7	34	31	32.4	7	32	30	30.3	8	42.5	44.0	43.2	
8	..	..	32.0	8	31	30	30.7	9	43.0	44.5	43.7	
9	..	..	29.3	9	30	29	29.5	10	43.0	45.3	44.2	
10	32.5	32	32.1	10	30.5	29	29.5	11	47.5	48.0	47.7	
11	33	32	32.7	11	..	..	29.2	12	..	51.0	51.0	
12	..	..	34.0					13	50.3	52.5	51.5	
13	..	..	..					14	..	54.0	54.0	
14	..	..	..					15	..	56.0	56.0	
15	..	..	..					16	..	56.5	56.5	
16	..	..	32.5					17	..	56.0	56.0	
17	32	31	31.3									
18	32	31	31.3									
19	31	31	31.0									
20	31	31	31.0									
21	32	30	30.3									
22	33	30	31.2									
23	31	30	30.2									
24	31	30	30.2									
25	32	30	30.4									
26	30	30	30.0									
27	31	30	30.2									
28	30	29	29.5									
29	30	29	29.7									
30	30	29	29.7									
31	29	29	29.0									
				AUGUST, 1859.								
				Date.	8 A. M.	8 P. M.	Mean.					
				21	..	39° 8	39° 8					
				22	39° 5	38.0	38.7					
				23	36.5	36.8	36.7					
				24	37.8	38.3	38.1					
				25	38.2	38.5	38.3					
				26	37.5	38.8	39.1					

Sept. 23th. Temp. at 22 fathoms,
31°; surface temp., 28°.

TABLE OF MEAN RESULTS FOR TEMPERATURE OF THE SURFACE OF THE SEA.

Date.	LOCALITY.		Temp. of sea.	REMARKS.
	BETWEEN N. ISL.	SOURCE W. ISL.		
1857.				
July 2-15	58° 2'-59° 1'	29.6-49° 3'	51°.7	Aberdeen in off Cape Farvel.
" 16-31	60.4-69.2	49.7-53.3	38.3	Off Cape Farwell to Lively.
Aug. 1-15	69.4-75.1	53.6-59.3	34.9	Lively in near Melville Bay.
" 16-31	75.1-73.3	59.3-64.1	30.8	" "
Sept. 1-15	75.5-75.5	64.0-65.5	29.6	" "
" 16-31	75.1	65.3	29.0	" "
Nov. 9	74.8	68.5	28.0	" "
1858.				
Feb. 2-22	72.8-70.7	61.2-69.7	28.5	Baffin Bay.
March 1-29	69.8-69.5	59.7-58.5	29.6	Near Davis Strait, at 44 fathoms depth.
April 7-21	67.8-64.2	58.4-56.7	30.0	Davis Strait 4 fathoms.
" 22-25	64.4-66.5	56.6-58.5	29.6	Davis Strait.
May 8-11	66.6-69.0	53.3-53.3	28.5	Holsteinberg to Whalefish Islands.
" 22-31	71.3-72.8	55.8-55.4	35.5	Guesak Fjord to off Upernivik.
June 1-15	72.8-74.2	55.8-58.2	32.0	Off Upernivik to south of Melville Bay.
" 16-30	75.8-75.9	60.1-67.5	31.4	Melville Bay.
July 1-16	75.9-74.6	67.5-69.9	31.7	Upper Baffin Bay.
" 18-31	74.4-72.6	62.0-76.3	32.4	Baffin Bay.
Aug. 1-12	72.6-74.3	77.5-89.0	32.8	Near Lancaster Sound and Barrow Strait.
" 16-31	74.5-72.0	94.0-94.2	59.5	Prince Regent Inlet, Port Kennedy.
Sept. 1-11	72.0	94.2	29.5	Near Port Kennedy.
" 27	72.0	94.0	28.0	" "
1859.				
Aug. 21-26	72.7-69.7	72.1-65.5	34.5	Lower Baffin Bay.
Sept. 2-9	67.3-58.7	57.3-66.3	41.0	Off North Greenland.
" 10-17	58.1-51.3	44.9-16.4	52.5	"

The lowest temperatures of the surface of the sea were observed in November, 1857, near Melville Bay, and in September, 1858, at Port Kennedy (viz., 28°.0); the highest temperature, north of Davis Strait, in May, 1858, off Swarte Hook Peninsula (viz., 53°.5).

The following table of monthly mean temperatures of the air (in shade), expressed in degrees of Fahrenheit's scale, has been prepared by Captain McClintock, and is here appended as forming part of the most valuable material for the construction of the isothermal lines, and for the investigation of the climatic relations of this portion of the Arctic regions. I have added two columns, containing the results from the Second American Grinnell Expedition, under command of Dr. E. K. Kane, from my discussion of the observations, as published by the Smithsonian Institution, and the results for Port Kennedy as made out by me in the preceding discussion. This last column may be substituted for that given by Captain McClintock in his general table.

PART II.

WINDS.

RECORD AND DISCUSSION OF THE DIRECTION AND FORCE OF THE WIND.

THE direction and force of the wind was recorded at the same hours as those given in the preceding record of the observations for temperature, and are the same at which all other meteorological observations were made.

In the preface to the journal containing the original record, Captain McClintock states—"The true direction of the wind is given throughout;" and "the force of the wind is indicated according to the Beaufort scale of notation, 0 to 12, see Admiralty's Manual." Comparing the direction of the wind given in the fourth number of Meteorological Papers published by authority of the Board of Trade, 1860, I find that for a part of the cruise the magnetic direction is given, which in Captain McClintock's record is already converted into "true," the magnetic variation having been applied; I have, therefore, added to the record of the wind the observed variation of the needle to show the amount allowed for in the conversion of the directions. The proper reduction of the winds requires a knowledge of the velocity of the air corresponding to each number expressing the force according to Beaufort's scale; this I have derived from the following table:—

Denomination of wind.	Estimated number of force.	Pressure in pounds per square foot.	Velocity in miles per hour.
Calm	0	0.000	0
Light air	1	0.605	1
Gentle breeze	2	0.08	4
Moderate breeze	3	0.9	13
Fresh breeze	4	2.6	23
Strong breeze	5	5.1	32
Fresh gale	6	7.9	40
Strong gale	7	12.0	50
Storm	8	18.8	60
Tempest	9	31.0	80
Hurricane	10	49.0	100

The relation of the tabular numbers of pressure and velocity is in accordance with Smeaton's table, and also agrees with that following from Dr. Bernoulli's formula. By simple proportion, or by means of a diagram, we obtain the following velocity number corresponding to Beaufort's scale, or to a graduation from 0 to 12.

Force according to Beaufort's notation.	Corresponding adopted velocity in miles per hour.	Force according to Beaufort's notation.	Corresponding adopted velocity in miles per hour.
0	0	7	49
1	1	8	48
2	4	9	56
3	10	10	67
4	17	11	82
5	24	12	100
6	32		

The force of the wind being obtained by estimation, a moderate accuracy in the velocity numbers suffices.

Record of the Observations for Direction and force of the Wind.

This record may be divided in two parts; the first part comprising the period from September, 1857, to August, 1858, when the ship was in Baffin's Bay, and the second part between September, 1858, and August, 1859, when she was at Port Kennedy. These two periods will be discussed separately. The daily and mean monthly positions of the Fox are given in the record of the temperatures; those for the several seasons are as follows:—

	Between mean lat's—	and	Mean long's—
Autumn—Sept., Oct., Nov., 1857 . .	75° 3 and 74° 8 N.		65° 0 and 69° 1 W. of Gr.
Winter—Dec., Jan., Feb., 1857-8 . .	74.3 71.5		67.4 60.9
Spring—March, April, May, 1858 . .	69.4 69.7		58.1 53.7
Summer—June, July, Aug., 1858 . .	74.6 73.1		60.1 58.5
Whole year—average position, Baffin's Bay	73° 5 N.	and	65° 8 W. of Gr.
Second year—at Port Kennedy . . .	72 0		94.2

Remarks relating to winds are given in notes.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.
July, 1857.—Mean position: Lat. 62° N.; long. 39° 1 W. of Greenwich.

DATE.	4h.	5h.	Noon.	4h.	5h.	Midn't.	Varia's allow'd.	REMARKS.
1	----	----	----	----	----	----		
2	2 S. S. W.	2 W. S. W.	4 S. W.	4 S. by W.	4 S. S. W.	4 S. S. W.		The variation applied for the 2d, 3d, 4th, and 5th is not given.
3	6 S.	4 S.	5 S. S. W.	1 N. W.	Calm	4 N. E. by N.		
4	5 N. E. by N.	5 N. E. by N.	5 N. E. by N.	6 N. E. by N.	5 N. by E.	7 N. by E.		
5	6 N.	6 N.	4 N.	2 W. N. W.	2 W. N. W.	2 N. W. by W.		
6	2 N. W. by W.	1 S. W.	1 N. W.	1 W. N. W.	1 W. N. W.	1 N. W.	30°	
7	1 E.	Calm	1 E.	1 E.	3 E. S. E.	4 E. S. E.	37	
8	6 E. S. E.	6 E. S. E.	6 E. S. E.	7 E. by S.	7 E. by S.	7 E. by S.	43	
9	7 E. by S.	7 E. by S.	5 E.	3 E.	2 E.	1 S'ly	47	
10	3 E.	4 E. N. E.	6 E. N. E.	3 E. by N.	1 E. by N.	1 var.	51	
11	1 N. N. E.	4 N. N. E.	5 N. N. E.	5 N. N. E.	5 N. N. E.	7 N. N. E.	52	
12	7 N. N. E.	6 N.	4 N. by W.	4 N. N. E.	4 N. N. E.	3 N.	55	
13	2 N. W.	1 N. W.	1 W. N. W.	1 W. N. W.	1 N'ly	1 N'ly	55	
14	Calm	1 E'ly	2 S. E.	2 E'ly	4 E'ly	4 E. by S.	55	
15	Calm	4 S. E.	4 N. W.	4 W. by N.	5 N. W.	1 N. N. W.	56	15th. Current N. E. W. 18°.
16	1 W. by N.	1 S. W.	1 E. W. by S.	1 N. W.	1 S. W.	2 N. N. E.	55	
17	4 N. W.	4 N. W.	5 N. W.	4 N. W.	4 N. W. by N.	2 N. W. by N.	56	
18	2 N. W. by W.	2 N. W. by W.	3 N. W. by E.	2 N. N. W.	2 N. W. by N.	2 N. W. by N.	58	
19	2 N.	----	----	4 S. W.	3 N. W.	5 N. W.		19th. Current 3 N. W. 10°; variation applied between the 16th & 20th not stated.
20	6 S.	6 S.	5 S. by E.	4 S. W.	3 N. W.	5 N. W.		
21	4 N. W.	2 S. W.	2 S. W.	2 N. W. by W.	2 N. W. by W.	2 W.		
22	5 N. W. by N.	5 N. W. by N.	5 N. W. by N.	5 N. W. by N.	3 N. W. by N.	5 N. W. by N.		
23	4 N. W. by N.	4 N. W. by N.	5 N. W. by N.	4 N. W. by N.	2 N. W. by N.	2 N. W. by N.		
24	Calm	4 N. W.	5 N. E. by E.	3 W. by S.	1 N. W.	3 N. W.		
25	5 N.	5 N.	1 N. N. W.	2 N. N. W.	1 N.	1 N.		
26	1 N.	1 N.	2 N.	2 N.	2 N.	2 N.		
27	5 N.	4 N.	3 N. by W.	3 N. by W.	5 N. S. W.	4 N. N. W.	62	
28	2 N. S. W.	1 N. N. W.	2 S. E.	4 S. E.	6 E. S. E.	7 S. S. E.	64	
29	7 E. S. E.	4 E.	4 E.	2 E. S. E.	3 S.	1 S.	70	
30	2 W. N. W.	4 N. W. by N.	5 N. W. by N.	7 N. W. by N.	7 N. W. by N.	2 N. W. by W.	72	
31	2 E. by S.	2 E. N. E.	Calm	Calm	Calm	Calm		

August, 1857.—Mean position: Lat. 74° N.; long. 59° 5 W.

DATE.	4h.	5h.	Noon.	4h.	5h.	Midn't.	Varia's allow'd.	REMARKS.
1	Calm	Calm	Calm	3 E'ly	4 E. S. E.	6 S. E. by E.	W. 72°	
2	4 S. E. by E.	3 N. S.	1 E'ly	1 E'ly	Calm	Calm		
3	1 E'ly	Calm	Calm	4 E. by S.	4 S. E. by S.	6 S. E. by S.		
4	6 S. E. by S.	2 S. E. by S.	5 S. E. by S.	6 N. W. by W.	4 N. W. by W.	4 W. N. W.		4th. Hauling ahead with strong gale.
5	5 W.	5 W.	4 W.	4 W. by S.	4 W. by S.	5 W. by S.	75	
6	4 E'ly	5 E'ly	6 E. S. E.	6 E. S. E.	5 S. S. E.	4 S. E. E.		
7	1 S. E. by S.	3 W. N. W.	2 N. N. W.	3 N'ly	1 N'ly	3 N'ly	69	
8	3 N. E. by E.	2 N. E. by E.	2 N. E. by E.	4 E. by N.	4 E'ly	5 E'ly		
9	5 S. E.	5 S. E.	5 S. S. E.	3 S. S. E.	3 S. S. E.	3 S. S. E.	82	
10	3 S. S. E.	3 S. S. E.	3 S. S. E.	1 W. N. W.	2 W'ly	2 N. W.	82	
11	4 N. W.	5 W. N. W.	4 N. W.	3 N. W.	3 N. W.	2 N. W.	90	
12	1 N. W.	1 S. W.	2 S. E.	2 S. E.	Calm	Calm	90	
13	Calm	Calm	Calm	Calm	1 N'ly	1 N. E. by N.	90	
14	Calm	Calm	Calm	Calm	Calm	Calm		
15	Calm	Calm	Calm	3 N. W.	3 N. W.	5 N. W.		Var's observed.
16	1 W'ly	Calm	2 S. S. E.	3 S. S. E.	3 S. S. E.	5 S. S. E.	87	
17	6 S. E.	4 S. E.	2 S. S. E.	4 S. S. E.	4 S. E.	5 S. E.	89	
18	5 S. E.	5 S. E.	3 S. S. E.	3 S. E.	1 S. E.	1 S. E.	90	
19	1 E. N. E.	1 E. N. E.	1 E. N. E.	2 S.	3 S. S. E.	5 E'ly	92	
20	5 S. E.	5 E.	4 S. E. by S.	3 S. E. by S.	2 S. E. by S.	2 S. E.	92	
21	1 S. E.	2 S. S. E.	2 S. W. by S.	1 S. W. by S.	1 S. W. by S.	Calm	92	
22	1 N. W.	Calm	Calm	1 S. E.	1 S. E.	1 E. S. E.	92	
23	1 E.	1 E.	4 E. N. E.	3 E.	3 E. N. E.	1 E. N. E.	92	
24	1 N. E.	2 N. by E.	2 N. W. by N.	3 N. W. by N.	3 N. W. by N.	3 N.	92 38'	Var's observed.
25	3 N.	4 E. by S.	5 E.	6 E. by N.	5 E. by N.	5 E. by N.		
26	2 E. by S.	3 E. by E.	5 E. S. E.	3 E.	5 E. by N.	5 E. by N.	92 38'	Var's observed.
27	6 E.	6 E. S. E.	4 N. W. E.	3 E. by E.	3 E. N. E.	2 E. by S.	92 38'	
28	Calm	2 E. by S.	1 E. S. E.	1 E. S. E.	1 S. S. E.	2 E. S. E.		
29	1 S. E.	1 S. E.	2 E. S. E.	1 N. W. by W.	4 W. N. W.	4 W. N. W.	92 30'	But Var's obs. too stationary, all seawards, owing to S. E. & S. E.
30	3 N.	3 N.	6 S. E.	7 E.	7 E. S. E.	6 E. S. E.		
31	5 S. S. E.	5 S. E.	5 E. N. E.	3 N. N. W.	6 N. W. by W.	6 N. W. by W.	94 12'	

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.
September, 1857.—Mean position: Lat. 15° 3 N.; long. 65° W.

DATE.	4h.	5h.	Noon.	4h.	5h.	Midn'l.	Variation allowed.
1	2 N. W.	2 E.	2 S. W.	1 W. N. W.	2 S. S. W.	2 S. E.	
2	2 S. E.	2 E. by E.	1 E.	Calm	Calm	1 N. W.	
3	1 N. W. by W.	1 N. W. by W.	1 N. W. by W.	1 N. N. W.	1 N. N. W.	1 N. W. by W.	
4	2 S. S. W.	2 S.	2 S. E. by S.	4 S. E.	5 E. S. E.	6 E. by S.	
5	1 N. E.	2 S. E.	2 E. by N.	2 E.	Calm	2 S. E.	
6	2 S. S. E.	2 S. E. by E.	3 E.	2 E. N. E.	3 N.	3 N. N. W.	W. 84° 25'
7	5 N. N. W.	5 W. by S.	2 W. S. W.	3 E.	4 N. E.	6 E. S. E.	
8	5 W. S. W.	7 S. S. W.	6 S. E.	7 S. E.	6 S. by W.	6 S. E. by S.	
9	5 S. by E.	6 S. E. by S.	6 S. by E.	2 S. by E.	7 S. by E.	6 S. by E.	
10	5 S. E. by S.	2 S. by E.	2 S. by E.	1 S. by E.	1 W. S. W.	1 W. by S.	
11	2 S. by E.	4 E. by S.	5 S. E.	7 S. E.	6 S. E.	6 S. W.	
12	4 W. by S.	2 W. by N.	2 W.	2 W. by N.	1 W. by N.	1 W. by N.	
13	4 W. by N.	2 W. N. W.	1 W. by N.	2 N. W.	3 S. E. E.	4 E. by N.	94 4
14	5 E.	4 S. E. by S.	4 S. E. E.	6 S. by E.	6 W. by S.	3 W.	
15	1 W. by S.	2 S. by E.	2 N. N. W.	1 S. E. by S.	1 E. by S.	2 E. N. E.	
16	4 E. by S.	2 E. by S.	4 E. by S.	3 E. by S.	4 E. S. E.	2 E. by N.	
17	2 N. E.	1 N. by W.	1 N. W. by N.	1 N. N. W.	1 N. W.	2 W.	95 16
18	2 N. by E.	2 N. N. W.	2 N. W.	4 N. W.	5 W. N. W.	2 W. N. W.	
19	5 N. E.	3 N. N. W.	1 N.	2 N. E. by W.	2 N. E. by N.	2 N. E.	
20	2 N. W. by N.	2 N. by E.	2 N. E.	2 N. W.	4 N. W. by W.	4 N. W. by W.	
21	4 N. W. by W.	4 N. W. by W.	5 N. W. by W.	4 N. W. by W.	4 N. W.	2 N. N. W.	
22	4 W. by W.	4 N. W. by W.	6 W. N. W.	6 W. N. W.	5 W. by S.	7 W. N. W.	
23	2 W. N. W.	2 N. W.	2 N. N. W.	1 W. N. W.	Calm	Calm	94 14
24	3 E. by S.	5 N. N. E.	6 N. N. E.	3 N. W.	2 N. W.	4 N. W.	
25	6 N. W.	4 N. W.	2 N. W.	2 N. W. by N.	1 N. E.	1 N. E.	
26	2 N. N. E.	2 W. by S.	3 N. W. by W.	2 N. W. by W.	3 N. W. by W.	3 W. N. W.	
27	2 N. W. by W.	3 N. N. W.	4 E. N. E.	4 N. E.	3 E. N. E.	3 N. E. by N.	
28	1 N. N. E.	Calm	2 E.	2 N. N. E.	Calm	Calm	
29	2 N. W. by W.	2 W. N. W.	1 W. N. W.	Calm	1 W. N. W.	1 W. N. W.	
30	Calm	1 N. W. by W.	4 N. N. W.	5 N. W. by W.	5 N. W. by W.	2 W. N. W.	
31	5h. Calm	6h. 1 N. W.	10h. 2 N. W. by W.	9h. 4 N. W. by W.	6h. 4 N. W. by W.	10h. 2 W. N. W.	

REMARKS.

1st. Ice driving to S. W., and afterwards to N. W.
2d. " " N. and N. W.
3d. " " S. E. and N. W.
4th. " " E., S. W., and W.
5th. Ice drift to westward.
6th. Var'n observed. Ice drift to S., N. W., & S. W.
7th. Ice drift to S. E. and N. W.
8th. " N. W. and N.
9th. " westward.
10th. " S. W., N. E. and E.
11th. " westward and N. W.
12th. " eastward and westward.
13th. " N. E. and N. W.
14th. " westward.
15th. " northward.

16th. Ice drift to S. W.
17th. " S. W.
18th. " S. W. and S. E.
19th. " N. and S. E.
20th. " S. E.
21st. " S. E.
22d. " S. E.
23d. " S. E., N. E., and S. W.
24th. " S. E.
25th. " S. E. and S.
26th. " S. E.
27th. " S. E. and S. W.
28th. " S. E. and S. W.
29th. " S. E.
30th. " S. E.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.
 October, 1857.—Mesa position: Lat. 15° 2' N.; long. 67° 9' W.

DATE.	2 ^a .	4 ^a .	6 ^a .	8 ^a .	10 ^a .	Noon.
1	1 W. N. W.	1 W. N. W.	Calm	2 S. by E.	2 E. N. E.	2 E. N. E.
2	2 E. S. E.	1 E. S. E.	Calm	1 W.	1 W.	1 W.
3	2 W. N. W.	2 W. N. W.	2 W. N. W.	2 N. W. by W.	2 N. W. by W.	2 N. W. by W.
4	4 N. W. by W.	4 N. W.	3 N. W.	3 N. W. by W.	2 W. N. W.	2 W. N. W.
5	2 N. N. W.	1 N. W.	2 N. W.	3 N. W.	4 N. W.	4 N. W. by W.
6	2 N. W.	2 N. W.	2 N. by E.	1 N. by E.	1 N. by W.	1 N. by W.
7	Calm	Calm	1 S. by E.	1 S. by E.	1 S. W.	1 S. W.
8	2 W. S. W.	1 W. S. W.	2 S. E. E.	2 S. E. by S.	1 E. by S.	1 E. by S.
9	1 E. by S.	1 E. by S.	1 N. W. by N.	2 N.	4 N. E.	4 N. E.
10	4 W. S. W.	4 W. S. W.	2 W. N. W.	2 W. N. W.	2 W. N. W.	2 W. N. W.
11	2 N. W. by W.	2 N. W. by W.	2 W. N. W.	2 W. N. W.	2 W. N. W.	2 W. N. W.
12	4 W. N. W.	4 W. N. W.	4 W. N. W.	4 N. W.	2 W. by N.	2 W. by N.
13	1 W. by N.	1 W. by N.	1 W.	1 W.	1 E. N. E.	2 E. N. E.
14	6 E. N. E.	5 E. N. E.	4 E. S. E.	4 E. S. E.	4 E. S. E.	4 E. S. E.
15	7 E. S. E.	7 E. S. E.	6 E. S. by E.	5 E. S. by E.	7 S. E.	7 S. E.
16	4 E. S. E.	4 E. S. E.	4 E. S. E.	3 S. E.	3 S. E.	3 E. by S.
17	6 S. S. E.	4 S. S. E.	4 E. by S.	4 E.	4 N. E.	6 N. E.
18	1 E. by S.	1 E. by S.	3 W.	3 W.	2 W. S. W.	2 S. by W.
19	2 N. W.	4 N. W.	4 N. W.	4 N. W.	4 W. N. W.	4 W. S. W.
20	4 E. S. E.	4 E. S. E.	3 S. E. E.	2 S. W. by S.	2 S. W. by S.	2 S. W. by S.
21	6 S. by E.	4 S. by E.	5 S. E. by S.	5 S. E. by S.	4 S. E. by S.	4 S. E.
22	5 N. E. by E.	5 N. E. by E.	6 N. W. by W.	6 N. W. by W.	9 W. by S.	9 W. by S.
23	6 S. W.	4 S. W.	2 S. W.	3 S. W.	2 S. W.	2 S. W.
24	6 W. by N.	6 N. W.	6 N. W.	6 W. N. W.	3 W. N. W.	2 W. N. W.
25	Calm	Calm	1 W.	1 W.	1 E. by N.	1 N. N. W.
26	2 N. W. by W.	2 N. W. by W.	1 W. by S.	1 W. by S.	1 S. W. by W.	1 S. W. by W.
27	1 S. E. by E.	1 S. E. by E.	1 S. E. by E.	1 W. by N.	1 N. W.	1 N. W.
28	3 N. W.	3 N. W.	7 N. W.	6 N. W.	4 N. W.	3 N. W.
29	3 E. by N.	2 E. by N.	1 E. by N.	1 N. W. by W.	1 N. W. by W.	1 N. W. by W.
30	3 N. W.	4 N. W.	4 N. W.	1 N. E. by E.	2 E. N. E.	2 E. N. E.
31	2 N. E. by N.	3 N. E. by N.	4 N. E. by E.	2 N. by E.	2 N. by E.	3 N. by E.

DATE.	2 ^a .	4 ^a .	6 ^a .	8 ^a .	10 ^a .	Midn't.
1	2 S. E. by E.	1 S. E. by E.	6 N. E.	4 E.	6 E. S. E.	4 E. S. E.
2	1 E. by N.	1 S. S. E.	1 W.	1 W.	Calm	3 W.
3	2 N. W.	2 N. W. by N.	2 N. W. by N.	2 N. W. by N.	2 N. W. by W.	3 N. W. by W.
4	2 W. N. W.	2 W. N. W.	2 W. N. W.	1 W. N. W.	2 W. by N.	2 W. by N.
5	3 W. N. W.	3 W. N. W.	2 W. N. W.	1 W. N. W.	2 N. W.	2 N. W.
6	1 N. by W.	2 N. W.	2 N. W.	2 W.	Calm	Calm
7	1 S. W.	1 S. W.	1 S. W.	Calm	Calm	1 S. W.
8	1 E. by S.	1 E. by S.	1 E. by S.	1 E. by S.	Calm	1 E. by S.
9	4 N. E.	4 N. E.	3 N. N. E.	4 N. N. E.	4 N. N. E.	4 N. N. E.
10	2 W. N. W.	2 W.	2 W.	2 W.	2 W.	2 W.
11	2 W. N. W.	3 W. N. W.	3 W. N. W.	2 W. N. W.	3 W. N. W.	2 W. N. W.
12	2 W. by N.	2 W. by N.	1 W. by N.	2 W. by N.	2 W. by N.	2 W. by N.
13	4 E. N. E.	3 E. N. E.	4 E. N. E.	6 E. N. E.	4 E. N. E.	7 E. N. S.
14	7 E. S. E.	6 S. E. by E.	4 E. by E.	3 E. by S.	4 S. E.	7 S. E. by S.
15	3 S. S. E.	3 S. E. by S.	2 S. S. E.	Calm	Calm	Calm
16	3 S. by S.	4 E. by S.	5 E. by S.	6 E.	7 S. by S.	9 S. S. E.
17	5 E. by N.	3 E. by N.	4 E. by N.	3 E. by N.	2 E. by S.	2 E. by S.
18	3 S. S. W.	1 S. by W.	1 S. by W.	Calm	1 W. S. W.	1 W. S. W.
19	4 W. by N.	3 W. by N.	2 W. by N.	1 W. by N.	2 E. S. E.	2 E. S. E.
20	3 S. E.	6 S. E.	6 E. S. E.	7 S. E. by E.	7 S. by E.	7 S. by E.
21	3 S. E. by E.	2 S. E. by E.	2 E. by W.	6 E. by N.	6 N. E. by E.	4 N. E. by E.
22	9 W. by N.	8 W. by N.	8 W. by N.	8 W. by N.	8 S. W. by W.	8 S. W. by W.
23	2 S. W.	2 S. W.	2 S. W. by W.	2 S. W. by W.	2 W. by S.	2 W. by S.
24	1 W.	Calm	1 W. by S.	1 E. by S.	1 E. by S.	1 E. by S.
25	1 E. by S.	Calm	1 W. by S.	1 W. by S.	2 W. by S.	3 N. W. by W.
26	1 S. S. W.	2 S. S. W.	2 E. S. W.	Calm	Calm	Calm
27	2 N. W. by W.	2 N. W. by W.	2 N. W. by W.	7 N. W. by W.	6 N. W. by W.	6 N. W. by W.
28	2 N. W. by W.	1 E.	1 E.	Calm	1 N. E. by N.	1 N. E. by N.
29	2 N. W. by W.	2 N. W. by W.	2 N. W. by W.	4 N. W. by W.	6 N. W. by W.	4 N. W. by W.
30	2 E. N. E.	2 E. by N.	1 E. by N.	2 E. by W.	3 E. by W.	3 E. by W.
31	4 N.	4 N.	5 N.	5 N.	4 S. N. E.	6 E. N. E.

* Variation 52° W.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.

November, 1857.—Mesa position: Lat. 74° 8' N.; long. 69° 1' W.

DATE.	2d.	4d.	6d.	8d.	10d.	Noon.
1	4 E. by N.	4 E. by N.	4 E. by N.	5 E. by N.	4 E. by N.	1 E. by N.
2	4 N. W. by W.	3 N. W. by W.	Calm	Calm	Calm	1 E. S. E.
3	1 E. N. E.	3 E. N. E.	2 N. N. E.	1 S. W. by S.	2 S. W. by S.	3 S. W. by S.
4	1 E. N. E.	3 E. N. E.	4 E. N. E.	2 E. N. E.	3 E. by S.	3 E. by S.
5	3 N. W.	3 N. W.	3 N. W.	2 N. W.	1 N. N. W.	1 N. N. W.
6	3 W. N. W.	3 W. N. W.	3 W. N. W.	3 W. N. W.	3 W. N. W.	3 W. N. W.
7	3 N. W.	3 N. W.	3 N. W.	3 N. W.	3 N. W.	4 N. W.
8	3 W. N. W.	4 W. N. W.	4 W. N. W.	3 W. N. W.	2 W. N. W.	4 W. N. W.
9	6 N. W. by W.	5 N. W. by W.	5 N. W. by W.	6 N. W. by W.	5 N. W. by W.	4 N. W. by W.
10	5 W. by S.	6 W. S. W.	3 S. W. by W.	2 S. S. E.	3 S. by W.	3 S. by W.
11	1 N. E. by N.	2 N. E. by N.	1 W.	2 W. S. W.	2 S. W.	3 N. W.
12	7 N. W. by W.	7 N. W. by W.	3 W. N. W.	4 W. N. W.	3 W.	3 W.
13	Calm	2 W.	2 W.	Calm	2 W. by N.	2 W. by N.
14	4 E.	4 E.	4 E.	7 E. S. E.	7 E. S. E.	7 E. S. E.
15	2 S.	2 S.	4 S.	5 S.	6 S. by N.	5 S. by N.
16	7 E. S. E.	7 E. S. E.	5 E. S. E.	2 E. S. E.	1 E. S. E.	1 E. S. E.
17	3 S.	3 S.	3 W. S. W.	3 W. S. W.	3 S. S. E.	3 S. S. E.
18	Calm	Calm	Calm	1 W.	1 W. N. W.	3 W. N. W.
19	1 W. N. W.	1 W. N. W.	Calm	1 W. N. W.	3 N. W.	3 N. W.
20	18. by W.	1 E. by W.	1 S. by W.	1 S. by W.	1 S. by W.	1 S. by W.
21	4 N. E.	3 N. E.	3 N. E.	2 N. E.	2 S. E. by E.	4 E.
22	9 N. E. by E.	6 N. E. by E.	9 N. E. by E.	9 N. E. by E.	9 N. E. by E.	9 N. E. by E.
23	3 S. S. W.	3 S. S. W.	3 S. S. W.	7 S. S. W.	4 S. S. W.	4 S. S. W.
24	3 S. W.	3 S. W.	1 S. W.	1 S. W.	1 S. W.	1 S. E.
25	2 S. S. E.	4 S. S. E.	5 N. E. by E.	6 N. E. by E.	1 S. E.	1 S. E.
26	7 W.	6 W. N. W.	5 W. N. W.	4 W. N. W.	3 W. N. W.	4 W. N. W.
27	3 N. W.	6 N. W.	6 N. W.	6 N. W.	4 N. W.	4 N. W.
28	3 W. S. W.	6 W. S. W.	3 W. N. W.	3 W. N. W.	4 W. S. W.	4 W. S. W.
29	6 W.	6 W.	6 W.	7 W.	7 N. W.	8 N. W.
30	3 W. by N.	2 W. by N.	2 W. by N.	2 N. W.	1 N. W.	1 N. W.

DATE.	2d.	4d.	6d.	8d.	10d.	Midn't.
1	1 E. N. E.	1 E. N. E.	2 E. N. E.	2 N. W.	2 N. W.	4 N. W.
2	1 E. S. E.	1 E. S. E.	1 E. S. E.	1 E. S. E.	2 E. S. E.	Calm
3	3 S. W.	3 S. W.	2 S. W.	1 S. W.	2 N. W. by W.	2 N. W. by W.
4	3 E.	3 E.	2 E.	1 E.	1 E.	1 N. W.
5	2 N. W.	1 N. W.	1 N. W.	Calm	Calm	3 N. W. by W.
6	3 N. W.	2 N. W.	4 N. W.	7 N. W.	7 N. W.	4 N. W.
7	2 N. W. by N.	2 N. W. by N.	3 N. W. by N.	2 N. W. by N.	4 N. W.	4 N. W.
8	4 W. N. W.	3 W. N. W.	4 W. N. W.	3 W. N. W.	2 W. N. W.	1 W. N. W.
9	3 N. W. by W.	6 W.	7 W.	7 W.	7 W.	3 W.
10	3 S. S. W.	2 S. S. W.	2 S. S. W.	1 S.	1 S.	7 N. E.
11	2 N. W.	3 N. W.	4 N. W.	3 N. W.	7 N. W.	7 N. W.
12	3 W.	3 W. by N.	5 W. by N.	3 W. by N.	4 W. by N.	1 W. by N.
13	18. W.	18. W.	3 S. S. E.	3 S. S. E.	3 E. by N.	3 E. by N.
14	7 E. S. E.	5 E. S. E.	3 E. S. E.	3 E. S. E.	3 E. S. E.	3 E. S. E.
15	4 E. by N.	3 E. by N.	4 N. E. by E.	3 N. E. by E.	3 N. E. by E.	3 S. W. by S.
16	1 S. W. by S.	1 S. W. by S.	1 S. W. by S.	3 S. W. by S.	4 S. W. by S.	4 S. W. by S.
17	3 S. S. E.	3 S. S. E.	3 S. S. E.	3 S. S. E.	3 S. S. E.	1 S. S. E.
18	3 W. N. W.	2 W. N. W.	2 W. N. W.	3 W. N. W.	3 W. N. W.	3 W. N. W.
19	2 W. by N.	2 W. by N.	1 W. by N.	Calm	Calm	Calm
20	Calm	Calm	1 N. E.	1 N. E.	1 N. E.	1 N. E.
21	3 S. E.	3 S. E. by E.	6 N. E. by E.	7 N. E. by E.	3 N. E. by E.	3 N. E. by E.
22	3 S. E. by S.	3 S. S. E.	3 S. S. E.	3 S. S. E.	3 S. S. E.	3 S. S. E.
23	4 S. by W.	4 S. by W.	4 S. by W.	3 S. W. by S.	4 S. W. by S.	3 S. W. by S.
24	Calm	Calm	Calm	3 S.	3 S.	3 S.
25	3 N. W. by W.	3 N. W. by W.	3 N. W. by W.	6 N. W. by W.	6 W. S. W.	6 W. by S.
26	7 W. by N.	7 W. by N.	7 W. by N.	6 W. by N.	6 W. by N.	6 W. by N.
27	5 W. by N.	4 W. by N.	4 W. by N.	4 W. by N.	4 W. by N.	4 W. by N.
28	5 W. by N.	4 W. by N.	4 W. by N.	4 W. by N.	5 W. by N.	4 W. by N.
29	3 N. W.	6 N. W.	6 W. by N.	6 W. by N.	3 W. by N.	1 W. by N.
30	1 N. W.	1 N. W.	1 N. W.	1 N. W.	1 N. W.	1 N. W.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.

December, 1857.—Mean position: Lat. 74° 3 N.; long. 61° 4 W.

DATE.	2h.	4h.	6h.	8h.	10h.	Noon.	Variation.
1	1 N. W. by W.	1 N. W. by W.	2 N. W. by W.	1 N. W. by W.	1 N. W. by W.	1 N. W. by W.	
2	1 N. W.	1 N. W.	1 N. W.	1 N. W.	1 N. W.	1 N. W.	
3	1 N. W. by N.	1 N. W. by N.	2 N. W. by N.	1 N. W. by N.	1 N. W. by N.	2 W. S. W.	
4	2 S. by W.	2 S. by W.	2 S. by W.	2 S. by W.	2 S. by W.	2 S. by W.	
5	2 S. by E.	2 S. by E.	4 W. by N.	4 W. by N.	5 W. by N.	6 W. by N.	
6	7 N. W. by W.	8 N. W. by W.	8 N. W. by W.	7 N. W. by W.	6 S. S. E.	3 S. S. E.	
7	5 S. S. E.	5 S. S. E.	3 S. S. W.	1 S. S. W.	1 S. S. E.	1 S. S. E.	
8	3 N. E.	2 N. E.	Calm	Calm	1 N. W.	1 N. W.	
9	6 N. W. by W.	1 N. W. by W.	1 N. W. by W.	1 S. S. E.	1 S. E.	1 S. E.	
10	1 N. W.	1 N. W.	1 N. W.	1 N. W.	2 N. S. E.	2 N. S. E.	
11	1 N. W. by N.	1 N. W. by N.	1 N. W. by N.	1 N. W. by N.	2 N. W. by N.	2 N. W. by N.	
12	6 N. E. by E.	6 N. N. W.	8 N. W. by N.	8 N. W. by N.	4 N. W.	5 N. W.	
13	7 N. N. W.	1 W. N. W.	1 N. W. by N.	1 N. W. by N.	7 N. W. by W.	7 N. W. by W.	
14	3 N. W.	2 N. W.	2 W. S. W.	7 W. S. W.	1 W. S. W.	1 S. W.	
15	Calm	Calm	Calm	Calm	Calm	1 W. S. W.	
16	1 W.	1 W.	1 N. E.	1 W. N. W.	1 W. N. W.	1 W. N. W.	
17	2 N. E.	2 N. E.	3 W.	6 N. N. W.	2 N. W.	2 N. W.	
18	3 W.	4 W.	3 W.	3 W.	2 W.	1 W.	
19	Calm	2 S.	2 S.	4 W. N. W.	4 W. N. W.	4 W. N. W.	
20	3 N. E.	4 E. by N.	5 W. S. W.	4 S. by W.	4 S. by E.	4 S. by E.	
21	4 S. W.	6 N. W.	7 N. W.	7 N. W.	7 W. N. W.	6 W. S. W.	
22	1 S. W.	2 S. by E.	4 S. by E.	6 S. by E.	4 S. by E.	4 S. by E.	
23	5 S. S. E.	5 S. S. E.	5 S. S. E.	4 S. S. E.	4 S. S. E.	4 S. S. E.	57° W.
24	1 S. E.	1 S. E.	1 N. E.	1 N. N. E.	1 N. N. E.	1 N. N. W.	(about)
25	3 N. N. E.	3 N. N. E.	4 N. N. E.	5 N. by E.	4 N. by E.	4 N. by E.	
26	2 N. by E.	2 N. by E.	2 N. by E.	2 N. by W.	1 N. by W.	1 N. by W.	
27	4 N. by W.	5 N. by W.	4 N. W.	6 N. W.	6 N. W.	6 N. W.	
28	4 N. N. W.	4 N. N. W.	4 N. N. W.	5 N. by W.	4 N. by W.	2 N. W. by N.	
29	6 S. E. by S.	7 S. E. by S.	7 S. E. by S.	6 S. E.	6 S. by E.	5 S. by E.	
30	3 S. by W.	3 S. by W.	1 W. by N.	1 W. by N.	2 N. E.	2 N. E.	51° W.
31	3 N. N. W.	2 W. E. W.	1 W. N. W.	2 S. W. by W.	2 W. by S.	2 W. by S.	(about)

DATE.	2h.	4h.	6h.	8h.	10h.	Midn't.	
1	1 N. W. by W.	1 N. W. by W.	1 N. W. by W.	1 N. W. by W.	1 N. W. by W.	1 N. W. by W.	
2	1 N. W. by N.	1 N. W. by N.	1 N. W. by N.	1 N. W. by N.	1 N. W. by N.	1 N. W. by N.	
3	3 W. S. W.	3 W. S. W.	2 S. W. by S.	2 S. W. by S.	1 S. W. by S.	2 S. W. by S.	
4	6 S.	2 S.	4 S.	2 S.	3 S.	3 S.	
5	6 W. by N.	6 W. by N.	7 W. by N.	6 W. by N.	8 N. W.	8 N. W.	
6	3 S. E.	4 S. E.	3 S. E.	2 N. E. by N.	2 N. E.	4 S. S. E.	
7	5 S. S. E.	5 S. S. E.	4 E. S. E.	1 E. S. E.	1 E. S. E.	1 N. E.	
8	1 N. W.	1 N. W.	1 N. W.	1 N. W.	1 N. W.	3 N. W.	
9	1 S. E.	1 S. E.	1 S. E.	1 S. E.	1 N. W.	1 N. W.	
10	1 N. N. W.	1 N. N. W.	2 N. E.	2 N. E.	1 N. E.	1 N. E.	
11	2 N. N. W.	3 N.	3 N.	3 N.	3 N.	4 N. N. E.	
12	6 W. N. W.	6 W. N. W.	9 W. N. W.	9 W. N. W.	6 W. N. W.	6 W. N. W.	
13	6 N. W. by W.	6 N. W. by W.	4 N. W. by W.	4 N. W. by W.	4 N. W. by W.	2 N. W. by W.	
14	1 S. W.	1 S. W.	Calm	Calm	Calm	Calm	
15	1 W. S. W.	1 W. S. W.	1 W. S. W.	1 W. S. W.	1 W. S. W.	1 W. S. W.	
16	1 W.	1 W.	3 N.	3 N. E.	1 N. E.	1 N. E.	
17	1 W. by N.	1 W. by N.	2 W. by N.	3 W. by N.	2 W. by N.	2 W.	
18	1 N. W.	1 N. W.	1 N. W.	1 N. W.	1 W. by S.	1 W. by S.	
19	2 W.	Calm	1 N. E.	1 N. E.	1 N. E.	3 N. S. E.	
20	3 W. S. W.	3 W. S. W.	2 W. S. W.	2 W. S. W.	Calm	Calm	
21	4 W. N. W.	4 W. N. W.	4 W. N. W.	1 W. N. W.	1 S. W.	1 S. W.	
22	4 S. S. E.	4 S. S. E.	6 S. S. E.	5 S. S. E.	5 S. S. E.	5 S. S. E.	
23	4 S. by E.	4 S. by E.	3 S. by E.	3 S. by E.	3 S. by E.	3 S. by E.	
24	1 N. by E.	1 N. by E.	2 N.	1 N.	1 N.	1 N.	
25	2 N. by E.	3 N. by E.	3 N. by E.	3 N. by E.	4 N. by E.	4 N. by E.	
26	1 N. by W.	1 N. by W.	2 N. by W.	1 N. by W.	2 N.	3 N. by W.	
27	6 N. W. by N.	6 N. W. by N.	7 N. N. W.	7 N. N. W.	7 N. N. W.	6 N. N. W.	
28*	4 N. N. W.	5 N. N. W.	6 N. N. W.	4 N.	5 S. E. by S.	6 S. E. by S.	
29	4 S.	2 N. W.	3 S.	3 S.	3 S. by W.	6 S. by W.	
30	2 N. W.	2 N. W.	2 W. by N.	3 W. by N.	3 W. by N.	3 W.	
31	2 W. by S.	2 W. N. W.	2 W. N. W.	1 W. N. W.	1 W. N. W.	1 W. N. W.	

* At 8h. 45m. wind veered from N. by E. to S. E. by S.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.
January, 1858.—Mean position: Lat. 73° 2' N.; long. 65° 7' W.

DATE.	2h.	4h.	6h.	8h.	10h.	Noon.	Variation
1	3 W. by N.	1 W. by N.	1 N. W.	1 N. W.	1 W. N. W.	1 W. N. W.	91° W. (about)
2	3 W. by N.	4 W. by N.	4 W. by N.	4 W. by N.	4 W. N. W.	3 W. N. W.	
3	4 N. N. W.	4 N. N. W.	4 N. N. W.	4 N. N. W.	5 N. N. W.	6 N. N. W.	90
4	3 S. by W.	3 S. by W.	2 S. by E.	2 S. by E.	1 S. by W.	1 S. by W.	
5	5 S. by E.	5 S. E.	6 S. by W.	6 S. by W.	6 S. by W.	6 S. by W.	89
6	5 N. by W.	4 N. by W.	4 N. by W.	4 N. by W.	6 N. N. W.	6 N. N. W.	
7	6 N. W.	6 N. W.	7 N. W.	7 N. W.	7 N. W.	7 N. W.	88
8	7 N. W.	7 N. W.	7 N. W.	6 S. W.	6 W. by N.	5 W. by N.	
9	7 W.	6 W.	5 W. N. W.	4 W. N. W.	6 W. N. W.	5 W. N. W.	87
10	4 N. N. W.	4 N. N. W.	5 N. N. W.	5 N. N. W.	5 N. N. W.	5 N. N. W.	
11	5 W. N. W.	3 W. N. W.	Calm	Calm	1 S. S. W.	1 S. S. W.	86
12	1 S. by E.	1 S. by E.	Calm	Calm	Calm	1 S. E.	
13	4 N. N. W.	4 N. N. W.	5 N. N. W.	5 N. N. W.	3 N. W.	3 N. W.	85
14	6 S. S. W.	1 S. S. W.	1 S. E.	2 S. E.	2 S. E.	2 S. E.	
15	4 N. E.	5 N. E.	5 N. E.	3 N. E. by N.	6 N. E. by N.	3 N. E. by N.	84
16	6 N. N. W.	6 N. N. W.	6 N. N. W.	6 N. N. W.	6 N. N. W.	6 N. N. W.	
17	4 N. N. W.	4 N. N. W.	4 N. N. W.	4 N. N. W.	6 N. W.	4 N. W.	83
18	2 W. by S.	2 W. by S.	1 W.	Calm	1 W.	1 N. N. W.	
19	1 N. by E.	2 N. by E.	2 N. by E.	1 E. N. E.	1 E. N. W.	1 N. E. by E.	82
20	4 E. S. E.	5 E. S. E.	6 E.	2 E.	2 E. by N.	6 E. N. E.	
21	7 N. N. W.	6 N. N. W.	6 N. N. W.	6 N. N. W.	7 N. W.	7 N. W.	81
22	1 N. by W.	1 N. by W.	1 N. by E.	1 N. by E.	1 N. E.	1 N. E.	
23	6 N. N. W.	5 N. N. W.	6 W. N. W.	6 W. N. W.	6 W. N. W.	6 W. N. W.	80
24	Calm	Calm	1 S. W.	1 S. W.	1 S. W.	1 N. N. E.	
25	4 N. by W.	4 N. by W.	2 E. N. E.	2 N. E.	1 N. N. E.	1 N. N. E.	79
26	6 W. N. W.	6 W. N. W.	4 W. by N.	6 W.	6 W. by N.	6 W. by N.	
27	4 W.	7 W.	4 W.	4 W. by S.	4 S. W.	4 S. W.	78
28	1 E. E. by S.	1 E. E. by S.	1 E. E. by S.	1 E. E. by S.	1 E. E. by S.	1 E. E. by S.	
29	1 S. S. E.	Calm	1 W. S. W.	1 S. S. E.	1 S. E. by S.	1 E. by N.	77
30	1 E.	1 E.	2 E. by S.	2 E. by S.	1 E. S. E.	1 E. S. E.	
31	1 E. E.	2 S. E.	1 E. N. E.	1 E. N. E.	6 N. by W.	4 N. by W.	76

DATE.	2h.	4h.	6h.	8h.	10h.	Midn.	
1	1 W. N. W.	1 W. N. W.	4 W. N. W.	4 N. W.	2 N. W.	2 N. W.	75
2	6 N. N. W.	1 W. N. W.	6 N. by E.	2 N. N. W.	6 N. N. W.	3 N. N. W.	
3	6 N. N. W.	6 N. W.	3 N. W.	3 N. W.	6 N. W.	2 S. by W.	74
4	2 E. S. W.	2 S. W.	1 S. by W.	1 S. by W.	1 S. by W.	1 S. by W.	
5	1 S. by W.	2 S. by E.	4 N. by E.	3 N. by E.	2 N. by E.	1 N. by E.	73
6	6 N. W.	6 N. W.	6 N. W.	6 N. W.	6 N. W.	7 N. W.	
7	7 N. W.	7 N. W.	6 N. W.	6 N. W.	6 N. W.	6 N. W.	72
8	6 W.	5 W.	6 W.	5 W.	6 W.	5 W.	
9	4 W. N. W.	4 W. N. W.	4 W. by N.	5 N. N. W.	4 N. N. W.	4 N. N. W.	71
10	3 N. N. W.	4 W. N. W.	4 W. N. W.	4 W. N. W.	4 W. N. W.	4 W. N. W.	
11	1 S.	1 S.	1 S.	1 S. by E.	1 S. by E.	1 S. by E.	70
12	1 N. E. by N.	1 N. N. E.	1 N. by E.	1 N. by E.	2 N. by W.	2 N. by W.	
13	4 N. W.	4 W. by S.	4 S. W.	4 S. W.	3 S. E. W.	3 S. E. W.	69
14	2 E.	3 E.	4 E.	4 E.	3 S. E.	4 E.	
15	6 N. E. by N.	6 N. E. by N.	6 N. E. by E.	6 N. by W.	5 N. by W.	5 N. N. W.	68
16	6 N. N. W.	6 N. W. by N.	6 N. W. by N.	4 W. N. W.	4 W. N. W.	4 W. by N.	
17	5 N. W.	6 W.	6 W.	5 W.	4 W.	6 W.	67
18	1 N. N. W.	1 N. N. W.	1 N. by E.	1 N. by E.	1 N. by E.	1 N. by E.	
19	1 N. N. E.	2 N. E. by E.	3 E. by N.	4 E.	4 E. by S.	4 E. S. E.	66
20	1 E. N. E.	1 E. N. E.	2 N. N. E.	3 N. N. E.	5 N.	7 N.	
21	5 N. W.	5 N. W.	5 W. by N.	4 N. W. by N.	2 N. W. by N.	1 N. W. by N.	65
22	1 N. N. W.	6 N. N. W.	2 N. W.	4 N. N. W.	4 N. N. W.	6 N. N. W.	
23	4 W. by N.	2 W. by N.	6 W. by N.	1 W. by N.	1 W. S. W.	1 W. by S.	64
24	1 N. by W.	1 N. by E.	6 N. by E.	3 N. W.	3 N. W.	3 N. W.	
25	1 N. N. E.	1 N. N. E.	1 N.	3 N.	3 N. N. W.	3 N. N. W.	63
26	6 W. by N.	6 W. by N.	5 W. by N.	6 W.	6 W.	8 W.	
27	3 E. by E.	3 S. by E.	5 S. E.	2 S. S. E.	2 S. S. E.	1 S. E. by S.	62
28	6 S. E. by S.	2 S. S. E.	2 S. S. E.	2 S. S. E.	1 S. S. E.	1 S. S. E.	
29	1 E. by S.	1 E. by S.	1 E. by S.	6 E. by S.	1 E. by S.	1 E. by S.	61
30	1 E. S. E.	1 E. S. E.	1 E. S. E.	1 E. S. E.	1 S. E.	1 S. E.	
31	5 N. by W.	5 N. by W.	7 N. by W.	7 N. by W.	7 N.	7 N.	60

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.

February, 1858.—Mean position: Lat. 11° 5 N.; long. 60° 9 W.

DATE.	2d.	4d.	6d.	8d.	10d.	Noon.	Variation.
1	6 N. N. W.	6 N. N. W.	8 N. N. W.	6 N. N. W.	6 N. N. W.	4 N. N. W.	50° W.
2	4 N. W.	4 N. W.	4 N. W.	4 N. W.	4 N. W.	6 N. W.	85
3	2 N. W.	2 N. W.	2 N. W.	2 N. W.	1 N. W.	1 N. W.	85
4	2 N. N. W.	2 N. N. W.	2 N. N. W.	2 N. N. W.	2 N. by W.	2 N. by E.	84
5	Calm	Calm	1 N.	1 N.	Calm	Calm	84
6	Calm	Calm	1 N. by E.	1 N. N. W.	1 N. N. W.	1 N. N. W.	
7	3 W. by N.	2 W. by N.	2 N. N. W.	3 W.	2 W.	1 W.	84
8	Calm	Calm	Calm	Calm	2 N. by W.	2 N.	85
9	3 N. N. E.	3 N. N. E.	3 N. by W.	3 N. by W.	3 N. by W.	4 N. by W.	85
10	9 N. N. W.	9 N. N. W.	6 N. N. W.	9 N. N. W.	8 N. N. W.	8 N. N. W.	85
11	1 E. by N.	4 E. by S.	6 E. by E.	5 S. S. E.	6 S. S. E.	4 S. S. E.	
12	7 N. W. by N.	6 N. W. by N.	6 N. W. by N.	4 N. W. by N.	3 W. by N.	2 W. by S.	
13	4 N. W.	4 N. by W.	3 N. by W.	3 N. by W.	3 N. by W.	3 N. by W.	84
14	7 N. by W.	7 N. by W.	7 N. by W.	7 N. by W.	6 N. by W.	6 N. by W.	
15	6 N.	6 N.	7 N.	6 N. by W.	6 N. by W.	4 N. by W.	83
16	5 N. by W.	6 N. by W.	6 N. by W.	6 N. by W.	6 N. by W.	6 N. by W.	
17	6 S. by W.	6 N. W.	6 N. by W.	5 N.	4 N.	4 N.	83
18	6 N. N. W.	6 N. N. W.	6 N. by W.	6 N. by W.	6 N. by W.	5 N.	
19	8 N. W.	8 N. W.	8 N. W.	7 N. W.	6 N. W. by N.	4 N. W. by N.	83
20	1 S. W. by S.	2 W. N. W.	2 W. N. W.	3 W. N. W.	4 N. N. W.	6 N. N. W.	
21	6 N. W. by W.	6 N. W. by W.	6 N. W. by W.	6 N. W. by W.	4 N. N. by W.	3 N. W. by W.	
22	1 S. W.	1 W. by E.	Calm	1 N. W. by W.	1 N. by W.	1 N. E. by N.	
23	7 N. N. E.	7 N. N. E.	7 N.	7 N.	7 N. by W.	7 N. by W.	81
24	7 N. by W.	7 N. W. by N.	8 E. W. by N.	9 N. W. by N.	6 N. N. W.	6 N. N. W. by N.	
25	19 N. W. by N.	10 N. W. by N.	10 N. W. by W.	9 N. W. by W.	8 N. W. by W.	6 N. W. by W.	
26	6 N. W. by W.	6 N. W. by W.	6 N. W. by W.	3 N. W. by W.	1 W. N. W.	1 W. N. W.	
27	3 S. by E.	3 S. by E.	3 S. by E.	3 S. by E.	3 S. by E.	3 S. by E.	
28	7 S. E. by S.	9 S. E. by S.	9 S. E. by S.	8 S. E. by E.	6 S. S. E.	4 S. S. E.	78 abt

DATE.	2d.	4d.	6d.	8d.	10d.	Midn't.
1	4 N. N. W.	4 N. N. W.	4 N. N. W.	3 N. N. W.	3 N. N. W.	3 N. N. W.
2	4 N. W.	4 N. W.	4 N. W.	4 N. W.	5 N. W.	5 N. W.
3	1 S. W.	2 S. W.	2 S. W.	2 S. W.	2 W. N. W.	2 W. N. W.
4	2 N. by E.	2 N. by E.	1 N. by E.	1 N. by E.	1 N. by W.	Calm
5	1 S. by E.	1 S. by E.	1 S. by E.	1 S. by E.	1 S. by E.	Calm
6	1 W.	2 W.	4 W. by N.	3 W. by N.	4 W. by N.	3 W. by N.
7	1 W.	2 W.	1 W.	Calm	Calm	Calm
8	1 N. E.	1 N. E.	1 N.	2 N. N. E.	3 N. N. E.	3 N. N. E.
9	6 N. by W.	6 N. by W.	6 N. by W.	5 N. W.	6 N. N. W.	6 N. N. W.
10	8 N. W. by N.	6 N. W. by N.	6 N. W. by N.	6 N. N. W.	3 N. by W.	2 S. by E.
11	2 S. by E.	1 S. by E.	Calm	4 N. by W.	5 N. by W.	7 N. by W.
12	1 W. by S.	3 W. by S.	2 N. W.	2 N. W.	3 N. N. W.	4 N. N. W.
13	3 N. by W.	3 N. by W.	3 N. by W.	4 N. by W.	6 N. by W.	6 N. by W.
14	7 N. by W.	6 N. by W.	6 N.	6 N.	6 N.	6 N.
15	4 N. by W.	4 N. by W.	6 N. by W.	5 N. by W.	6 N. by W.	6 N. by W.
16	6 N. by E.	6 N. by E.	6 N. by E.	6 N.	6 N.	6 N.
17	4 N.	5 N. by W.	5 N. by W.	6 N. by W.	5 N. by W.	6 N. by E.
18	5 N.	3 N.	6 N.	6 N.	5 N. N. W.	7 N. by W.
19	2 N. W. by N.	2 N. N. W.	4 W.	3 E. W. by E.	1 S. W. by S.	1 S. W. by S.
20	7 N. N. W.	7 N. N. W.	6 N. N. W.	6 N. W. by W.	6 N. W. by W.	6 N. W. by W.
21	3 N. W. by W.	2 W. N. W.	1 N. W. by W.	Calm	Calm	Calm
22	1 N. E. by N.	2 N. E. by N.	3 N. by W.	4 N. N. E.	6 N. N. E.	7 N. N. E.
23	6 N. by W.	6 N. by W.	4 N. W. by N.	6 N. W. by N.	6 N. by W.	7 N. by W.
24	9 N. N. W.	6 N. W. by N.	6 N. W. by N.	10 N. N. W.	10 N. N. W.	10 N. N. W.
25	7 N. W. by W.	6 N. W. by W.	7 N. W. by W.	6 N. W. by W.	7 N. W. by W.	7 N. W. by W.
26	Calm	1 S. E. by E.	1 S. E. by E.	2 S. by W.	2 S. by E.	2 S. by E.
27	2 E. S. E.	3 N. E.	4 N. E.	4 S. by E.	4 S. by E.	4 S. by E.
28	2 S. E. by S.	1 N. by W.	1 N. E. by N.	1 N. E. by E.	1 N. E. by E.	1 N. E. by E.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.
 March, 1858.—Mean position: Lat. 69° 4' N.; long. 59° 1' W.

DATE.	2a.	4a.	6a.	8a.	10a.	Noon.	Variation.
1	2 N. E. by E.	3 N. E. by E.	3 N. E. by E.	1 N. E. by E.	2 N. E. by E.	2 N. E. by E.	
2	7 S. by E.	7 S. by E.	6 S. by E.	2 S. W. by S.	2 S. by W.	1 S. W. by S.	
3	1 W. by N.	1 W. by N.	1 S. W. by W.	1 S. W.	1 N. by W.	1 N. by W.	
4	10 S. S. W.	9 S. S. W.	6 S. by W.	6 S. by W.	6 S. W. by S.	7 S. W. by S.	78° W.
5	1 S.	3 S.	1 S. W. by W.	1 S. W. by W.	1 S. W. by W.	1 S. W. by W.	
6	1 S. W. by W.	2 W. S. W.	4 N. W. by N.	3 N. W.	3 N. W.	3 N. W.	76
7	1 N. W. by N.	1 N. W. by N.	3 N. N. W.	4 N. by W.	4 N.	4 N.	
8	6 N. by W.	6 N. by W.	6 N. by W.	4 N. by W.	4 N. by W.	4 N. by W.	
9	2 N.	2 N. E.	2 N. E.	1 N. E. by E.	1 S. E.	2 E. by S.	
10	2 N. E. by N.	4 N. E. by N.	5 S. E. by S.	5 S. E. by S.	5 S. E. E.	3 S. E. E.	
11	3 S. E. by E.	3 S. E. by E.	6 S. E. by E.	6 S. E. by E.	5 S. E. by E.	5 S. E. by E.	
12	4 S. E. E.	5 S. E. E.	2 E. by S.	2 E. by S.	2 E. by S.	2 S. by W.	
13	2 E. by S.	3 S. by E.	4 S. E.	4 S. E.	3 S. N. W.	1 S.	
14	3 W.	3 W.	3 W. by N.	4 W. N. W.	3 W. N. W.	3 N. W. by N.	77 80°
15	4 N. W. by N.	4 N. W. by N.	6 N. W. by N.	6 N. W. by N.	6 N. W. by N.	7 N. W. by N.	
16	7 N. W. by N.	6 N. W. by W.	6 N. W. by W.	4 N. W. by W.	4 N. W. by W.	3 W. by N.	
17	4 N. W. by W.	4 N. W. by W.	4 N. W.	4 N. W.	3 N. N. W.	3 N. N. W.	
18	2 N. by W.	2 N. by W.	3 N. by W.	3 N.	3 N.	3 N.	
19	6 N.	7 N. by W.	6 N. W. by N.	6 N. W. by N.	5 N. W. by N.	5 N. W. by N.	
20	3 N. N. W.	2 N. by E.	1 N. E. by E.	1 S. E.	1 N. E. by E.	1 N. E. by E.	78 (about)
21	3 N. W. by N.	3 N. W. by N.	1 N. E. by E.	1 N. E. by E.	1 N. E. by E.	1 N. E. by E.	
22	1 N. E. by E.	1 N. E. by E.	1 E. by S.	1 S. E. by S.	3 E. by S.	3 E. by S.	
23	10 S. E. by E.	10 S. E. by E.	7 S. E. by S.	5 S.	2 S. W. by W.	1 S. by W.	
24	6 N. W. by N.	6 N. W. by N.	6 N.	6 N. by E.	6 N. by E.	6 N. by E.	75 (about)
25	6 N. by W.	6 N. by W.	3 N. by W.	7 N.	6 N.	6 N.	
26	8 N. W. by N.	8 N. W. by N.	6 N. N. W.	6 N. W. by N.	6 N. W. by N.	6 N. W. by N.	
27	8 N. N. W.	8 N. N. W.	8 N. N. W.	7 N. N. W.	7 N. N. W.	7 N. N. W.	
28	6 N. N. W.	6 N. N. W.	6 N. N. W.	5 N. N. W.	4 N. N. W.	3 N. N. W.	
29	4 N. N. W.	4 N. N. W.	6 N. N. W.	4 N. N. W.	4 N. W. by N.	4 N. W. by N.	74 (about)
30	2 N. E. by E.	2 N. E. by E.	2 E. by W.	2 E.	2 E.	2 S. E. by E.	
31	7 N. by W.	7 N. W. by N.	6 N. W. by N.	5 N. W. by N.	5 N. N. W.	5 W. N. W.	

DATE.	2a.	4a.	6a.	8a.	10a.	Middle.	
1	2 E. by N.	4 E. by N.	6 E. by N.	6 S. E. by S.	6 S. by E.	6 S. by E.	
2	1 N. W. by W.	1 N. W. by W.	3 N. N. W.	4 N. W. by N.	3 W. by S.	2 W. by S.	
3	2 N. E. by S.	3 N. E. by N.	4 N. E. by N.	7 N. E. by N.	9 N. E. by N.	9 N. E. by E.	
4	5 S. W.	2 S. W. by S.	3 S. W. by S.	2 S. W. by S.	Calm	1 S. by E.	
5	2 S. W. by W.	4 S. W. by W.	4 S. W. by W.	3 S. W. by W.	1 W. N. W.	1 N. W. by W.	
6	3 N. W. by N.	3 N. W. by N.	3 N. W. by N.	3 N. W. by N.	2 N. W. by N.	1 N. W. by N.	
7	4 N.	5 N.	4 N.	4 N. by W.	5 N. by W.	6 N. by W.	
8	4 N. by W.	4 N. by W.	2 N. E. W.	1 S. N. W.	5 N.	5 N.	
9	2 N. E. by E.	2 N. N. E.	2 N. N. E.	2 N. N. E.	2 N. N. E.	1 N. N. E.	
10	3 S. E. E.	4 E. by N.	5 E. by N.	2 E. by N.	3 E. by N.	2 E.	
11	4 E. E. by S.	3 S. E. by S.	3 S. E. by S.	4 S. E. by S.	4 E. E. by S.	4 S. E. E.	*
12	2 E. by E.	3 S. E. E.	4 S. W. by W.	3 S. W. by W.	2 S. W.	2 S. W.	
13	2 E.	2 S.	2 S.	2 W. by N.	3 W. by N.	3 W. by N.	
14	4 N. W. by N.	3 N. W. by N.	4 N. W. by N.	3 N. W. by N.	3 N. W. by N.	3 N. W. by N.	
15	7 N. W. by N.	7 N. W. by N.	7 N. W. by N.	7 N. W. by N.	7 N. W. by N.	7 N. W. by W.	
16	3 W. by S.	2 W. by N.	3 N. W. by N.	3 N. W. by N.	5 N. by W.	4 N. W. by W.	
17	4 N. N. W.	3 N. N. W.	4 N. by W.	3 N. by W.	3 N. by W.	3 N. by W.	
18	4 N.	4 N.	4 N.	4 N.	5 N.	5 N.	
19	4 N. W. by N.	4 N. W. by N.	3 N. W. by N.	2 N. W. by N.	2 N. W. by N.	2 N. W. by N.	
20	1 N. E. by E.	1 N. by E.	2 N. N. E.	2 N. N. E.	2 N. N. E.	2 N. N. E.	
21	1 N. E. by E.	1 S. E. by S.	1 N. E. by E.	1 E. by S.	Calm	1 E.	
22	5 E. E. E.	5 S. E. by E.	6 E. by S.	7 E. by S.	8 E. E. by E.	9 S. E. by E.	
23	3 N. W. by W.	3 N. W. by W.	3 W. by N.	4 W. by N.	4 W. N. W.	6 W. N. W.	
24	6 N. by W.	5 N.	5 N. by W.	5 N. by W.	5 N. by W.	6 N. by W.	
25	6 N.	6 N.	9 N. W. by N.	9 N. W. by N.	9 N. W. by N.	9 N. W. by N.	
26	6 N. W. by N.	6 N. N. W.	6 N. N. W.	6 N. N. W.	6 N. N. W.	6 N. N. W.	
27	7 N. N. W.	7 N. N. W.	7 N. N. W.	7 N. N. W.	7 N. N. W.	6 N. N. W.	
28	4 N. N. W.	3 N. N. W.	3 N. N. W.	4 N. N. W.	4 N. N. W.	4 N. N. W.	
29	2 N. W. by N.	2 N. W. by N.	2 N. W. by N.	2 N.	2 N.	2 N.	
30	2 S. E. by E.	2 N. N. E.	2 N.	6 N. by W.	7 N. by W.	6 N. by W.	
31	5 W. N. W.	5 W. by N.	5 W. N. W.	2 W. N. W.	2 W. N. W.	2 W. by N.	

March 4th. Wind shifted from N. E. by E. through E. to S. S. W. between midnight and 1 A. M.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.

April, 1858.—Mean position: Lat. 64° N.; long. 51° 17' W.

DATE.	2h.	4h.	6h.	8h.	10h.	Mean.	Variation.
1	2 W. by N.	3 W. by N.	4 S. W. by W.	3 S. W. by W.	1 S. W. by W.	1 S. W. by W.	74° W.*
2	3 N. E. by N.	3 N. E. by N.	1 N. E. by E.	1 N. N. E.	4 N. N. E.	3 N. N. E.	73 31†
3	4 S.	6 N.	6 N.	7 N.	8 N.	8 N.	
4	10 N. by W.	10 N. by W.	10 N. by W.	10 N. by W.	10 N. by W.	10 N. by W.	
5	10 N. by W.	8 N. by W.	8 N. by W.	8 N. by W.	8 N. by W.	8 N. by W.	
6	6 N. W. by W.	2 N. W. by W.	1 N. W. by W.	4 W. N. W.	3 W. by S.	6 W. by S.	72
7	3 N. E. by N.	2 N. E. by E.	3 N.	6 N.	3 W.	4 N.	
8	6 N. N. W.	6 N. N. W.	7 N. W. by W.	3 N. W. by N.	4 N. W. by N.	3 N. W. by N.	
9	2 N. N. W.	1 S. N. W.	1 N. N. W.	3 N. N. W.	4 N. N. W.	4 N. N. W.	70 02
10	4 N. N. W.	4 N. N. W.	4 N. N. W.	3 N. N. W.	2 N. N. W.	2 N. N. W.	
11	3 N.	3 N.	3 N.	3 N.	2 N. by E.	2 N. N. W.	
12	4 N. N. W.	5 N. N. W.	6 N. N. W.	5 N.	4 N.	4 N.	69 14
13	2 N. N. E.	2 N. N. E.	6 N. N. E.	6 N. N. E.	2 N. N. E.	2 N. N. E.	
14	2 N. by E.	3 N. E.	2 N. E.	2 N. E.	4 N. E.	4 N. E. by E.	
15	2 N.	3 N.	4 N.	4 N. by E.	3 N. by W.	6 N. by W.	
16	7 N. by W.	7 N. by W.	7 N. by W.	7 N. by W.	3 N. by W.	3 N. by W.	69
17	8 N. by E.	3 N. by E.	2 N. by E.	3 N. by E.	2 N. by E.	3 N. by E.	
18	-----	7 N. E.	-----	7 N.	-----	8 N.	
19	-----	7 N.	-----	6 N.	-----	6 N.	
20	-----	6 N. N. W.	-----	3 N. N. W.	-----	6 N. W.	64
21	-----	4 N. N. W.	-----	3 N. N. W.	-----	6 N. N. W.	
22†	-----	6 N. N. W.	-----	4 N. N. W.	-----	2 N. N. W.	
23	-----	3 N. N. W.	-----	2 N. W. by W.	-----	2 N. W.	63
24	-----	2 E. N. E.	-----	4 E. S. E.	-----	6 E. S. E.	
25	-----	4 S. S. W.	-----	Calm	-----	3 N. N. W.	
26	-----	6 W. S. W.	-----	3 S. by W.	-----	6 S. by W.	
27	-----	6 W. S. W.	-----	3 W.	-----	6 W. N. W.	66
28	-----	6 W. S. W.	-----	3 S. S. E.	-----	4 S. S. E.	68
29	-----	3 E. N. E.	-----	1 E. S. E.	-----	Calm	
30	-----	3 E. N. E.	-----	3 S. S. W.	-----	3 E. N. E.	

DATE.	2h.	4h.	6h.	8h.	10h.	Mean.	Variation.
1	2 W. by S.	2 W. by S.	2 W. by S.	1 W. by S.	Calm	1 N. E. by N.	
2	3 N. N. E.	4 N. N. E.	3 N. N. E.	4 N. by E.	4 N. by E.	4 N. by E.	
3	7 N. by W.	7 N. by W.	6 N. by W.	3 N. by W.	3 N. by W.	10 N. by W.	
4	10 N. by W.	10 N. by W.	10 N. by W.	10 N. by W.	10 N. by W.	10 N. by W.	
5	7 N. W. by N.	8 N. W. by N.	7 N. W. by N.	2 N. W. by W.	7 N. W. by W.	2 N. W. by W.	
6	2 W. by E.	Calm	Calm	Calm	Calm	1 N. E. by N.	
7	4 N.	6 N. by W.	6 N. by W.	3 N. by W.	3 N. by W.	6 N. N. W.	
8	8 N. W. by N.	7 N. W. by N.	3 N. W. by N.	3 N. W. by N.	2 N. W. by N.	2 N. W. by N.	
9	4 E. by W.	4 N. by W.	4 N. by W.	4 N. by W.	4 N. W.	6 N. N. W.	
10	4 N. by W.	3 N. N. W.	3 N.	2 N.	3 N.	3 N.	
11	1 N. W. by W.	1 N. W. by W.	1 N. W. by W.	3 W. N. W.	2 N. W.	4 N. N. W.	
12	3 N.	2 N.	3 N.	3 N.	2 N. by W.	2 N. by W.	
13	2 N. N. E.	1 N. E. by N.	1 E. by E.	1 N. by E.	1 N. by E.	1 N. by E.	
14	6 E. by E.	4 E. by N.	3 E. by N.	3 N. E. by E.	6 N. E. by E.	2 N. by W.	
15	2 N. by W.	5 N. by W.	6 N. by W.	3 N. by W.	6 N. by W.	7 N. by W.	
16	3 N.	9 N.	3 N. by E.	3 N. by E.	9 N. by E.	9 N. by E.	
17	9 N.	9 N.	3 N. by E.	3 N. by E.	7 N. by E.	7 N. by E.	
18	-----	8 N.	-----	8 N.	-----	7 N.	
19	-----	6 N. W. by N.	-----	6 N. by E.	-----	6 N. by E.	
20	-----	6 N. W.	-----	3 N. W.	-----	6 N. W.	
21	-----	8 N. N. W.	-----	7 N. N. W.	-----	2 N. N. W.	
22	-----	3 N. W. by N.	-----	3 N. N. W.	-----	2 N. N. W.	
23	-----	3 N. W.	-----	2 N. N. W.	-----	Calm	
24	-----	6 E. S. E.	-----	3 E. S. E.	-----	6 E. S. E.	
25	-----	4 N. W.	-----	4 W. S. W.	-----	4 W. S. W.	
26	-----	6 S. by W.	-----	6 W. S. W.	-----	6 W. S. W.	
27	-----	3 W. S. W.	-----	3 W. S. W.	-----	6 W. S. W.	
28	-----	3 var.	-----	3 W.	-----	4 E. N. E.	
29	-----	2 E. N. E.	-----	2 E. N. E.	-----	2 E. N. E.	
30	-----	2 S. S. E.	-----	4 S. by E.	-----	2 S. E.	

* About.

† Experienced a S. W. current.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.
May, 1858.—Mean position: Lat. 68° 7' N.; Long. 53° 7' W.

DATE.	4 ^h .	5 ^h .	Noon.	4 ^h .	5 ^h .	Midn't.	Variation
1	7 E.	2 S.	4 S. S. E.	4 S. S. W.	4 W. S. W.	4 W. S. W.	
2	2 E. N. E.	Calm	6 S. S. W.	4 N. E.	4 E. N. E.	5 N. by E.	
3	2 E. N. E.	4 E. N. E.	4 N. E.	3 N. E.	2 E. N. E.	2 E. N. E.	
4	4 E. N. E.	6 S. S. E.	8 S. S. E.	6 S. S. E.	6 S. S. E.	6 S. by E.	
5	6 S. by E.	6 N. N. W.	4 N. W. by W.	6 N. W.	6 N. W.	5 N. W.	
6	1 N. N. W.	4 N. S. W.	3 N. S. W.	4 N. S. W.	4 N. S. W.	3 N. N. E.	
7	4 S.	3 N. E.	3 N. E.	4 N. N. W.	4 N. N. W.	4 E.	
8	2 S. S. W.	2 E.	6 N.	4 N. N. W.	3 N.	3 N. by	
9	3 E. by	4 N. by	2 N. N. W.	2 Variable	2 E. S. E.	4 Variable	70° W.
10	3 to 5 E. N. E.	1 E.	6 E. by S.	7 E.	7 E.	6 E. S. E.	72
11	6 E. by E.	6 E. E.	6 E. E.	6 E. by	6 E. S. E.	4 E. S.	(about)
12	2 E. N. E.	3 N. N. W.	4 E. S. E.	4 E. S. E.	4 S. by W.	4 S. by W.	
13	6 N.	6 N. E. by E.	5 N. E. by N.	6 N. E.	3 N. E.	Calm	
14	2 S.	Calm	2 W. S. W.	2 N. by E.	Calm	2 S. by W.	
15	2 S. S. E.	2 E. N. E.	Calm	Calm	Calm	1 W. S. W.	
16	3 N. N. W.	3 N. E.	1 W. by N.	4 W. N. W.	4 W. S. W.	4 W. S. W.	
17	2 E.	2 E. S. E.	4 N. N. W.	2 W. S. W.	Calm	4 E. N. E.	
18	3 S. S. E.	1 W. N. W.	1 W. S. W.	2 W. N. W.	1 W. S. W.	Calm	
19	2 S. S. E.	Calm	3 W. S. W.	3 W. S. W.	3 W. S. W.	Calm	
20	Calm and light variable	winds					
21	Calm	3 E. N. E.	2 E. N. E.	2 W. S. W.	2 W. S. W.	1 W. S. W.	
22	5 E. N. E.	5 E.	5 E.	4 E. N. E.	1 E. S. E.	Calm	
23	Calm	6 E. N. E.	4 E. S. E.	2 W. S. W.	1 W. S. W.	1 W. S. W.	
24	1 S. by	5 E. S. E.	5 S. S. E.	Calm	Calm	Calm	
25	Calm	2 S. W.	Calm	2 S. E.	2 S. E.	2 S. E.	
26	4 E. E.	4 E. E.	2 E. S. E.	2 S. S. E.	Calm	1 N. N. W.	
27	2 S. S. E.	2 S. E.	Calm	4 N. N. W.	Calm	Calm	72 (ab'ty)
28	1 W. S. W.	3 S. E.	4 Variable	Calm	Calm	1 E. N. E.	70 3/4
29	2 E. N. E.	2 S. S. E.	1 S. S. E.	1 E. S. E.	Calm	1 N. W.	79
30	1 N. W. by W.	Calm	Calm	1 N. W.	3 S. by	2 S. by	
31	4 S. S. E.	4 S. S. E.	3 S.	2 S. S. W.	2 N. E.	Calm	

June, 1858.—Mean position: Lat. 74° 6' N.; Long. 50° 1' W.

DATE.	4 ^h .	5 ^h .	Noon.	4 ^h .	5 ^h .	Midn't.	Variation
1	1 N. W.	1 N. W.	2 S. S. W.	1 N. N. W.	1 E. N. E.	1 E. N. E.	
2	2 E. N. E.	2 N. W.	1 N. E.	1 N. E.	Calm	2 S. W. by S.	
3	4 S. by E.	6 S. by E.	4 N. by W.	1 S. W. by S.	Calm	1 N. W. by N.	
4	1 N. W. by N.	3 N. W. by N.	4 N. W. by W.	Calm	7 S. E. by S.	7 S. E. by S.	
5	5 S. E. by S.	4 S. E. by S.	3 S. E. by S.	Calm	4 N.	1 N.	63° W.
6	4 N. N. E.	3 N. W. by N.	3 S. W. by S.	3 N. E.	2 N. E.	Calm	
7	3 N. W. by N.	1 S. E. by S.	Calm	2 S. E. by S.	Calm	Calm	84
8	Calm	1 N. E. by E.	2 N. W. by N.	1 N. W. by N.	Calm	1 N. N. E.	85
9	Calm	Calm	Calm	1 S. E.	Calm	1 S.	
10	1 S. W.	Calm	1 S. W.	Calm	1 S. W.	1 S. W.	
11	1 S. E.	1 N.	1 S. E.	Calm	Calm	1 W.	86
12	Calm	3 W. by S.	2 W. by W.	4 N. by W.	4 N. by W.	4 N. W.	(about)
13	6 N. N. W.	6 N. W. by N.	4 N. by W.	4 N. by W.	4 N. W. by N.	4 N. W. by N.	
14	3 N. W.	3 N. N. W.	2 N. N. W.	1 N.	1 N. by E.	2 N. by E.	
15	1 N. by	1 N. by	3 N. W.	4 W.	4 W. N. W.	2 W. N. W.	
16	4 W. N. W.	4 N. W.	4 N. E.	3 W. by N.	2 S. W.	2 S. E.	90
17	5 S. E.	4 E. S. E.	2 E. S. E.	2 S. E.	2 E. by S.	1 E. by S.	90
18	1 E. by S.	1 N. E.	3 W. N. W.	2 Variable	Calm	Calm	90 (ab'ty)
19	2 N. W. by W.	2 N. W.	3 N. W.	3 N. W.	2 W. S. W.	2 S. W.	83
20	2 N. by E.	2 N. W.	3 W. S. W.	1 N. W. S. W.	1 N. W. S. W.	1 E. by S.	(about)
21	Calm	2 N. W.	3 N. by W.	4 W. N. W.	3 N. N. W.	3 N. N. W.	
22	3 N. N. W.	3 N. W. by N.	3 W. S. W.	1 S. E.	Calm	2 N. by S.	85
23	1 N. E.	4 N. E.	5 S. E.	3 E.	4 E. by N.	3 E.	(about)
24	3 N. E.	4 E.	3 E. by N.	2 N. by E.	2 N. by E.	2 N. by E.	94
25	2 N. N. W.	2 N. N. W.	2 N. by S.	2 N. E.	1 E. by S.	1 E. by S.	
26	Calm	2 N. by W.	1 N. N. W.	3 N. W.	3 N. W.	2 N. E.	94
27	3 E. by	6 E. by	6 E. by S.	5 E. by S.	6 E. by S.	5 E. E.	(about)
28	4 E. S. E.	3 S. E.	2 S. E.	2 E. E.	1 S. E.	2 S. E.	
29	1 S. E.	1 S. E.	3 E. by S.	3 E. by S.	6 E. by S.	6 E. by S.	
30	5 E. by S.	3 E. by S.	2 S. E. by E.	1 S. E. by E.	2 N. W. by W.	2 N. W. by W.	80

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.
July, 1858.—Mean position: Lat. 74° 4' N.; long. 76° 4' W.

DATE.	4h.	5h.	Noon.	4h.	5h.	Midn't.	Vari- ation.	REMARKS.
1	N.W. by W.	Calm	1 S. E.	1 E. by S.	4 W. S. W.	4 W. S. W.	95°	
2	4 S. S. W.	3 W. S. W.	Calm	2 S. E.	4 S. E.	4 S. E.	W.	
3	1 S. E.	1 N. W.	2 N. W.	Calm	1 W.	1 S. W.	98	(sheet)
4	Calm	Calm	3 N. W. by W.	3 N.	3 N.	2 N. E.		
5	4 N. E. by N.	4 E. N. E.	5 N.	4 S. E. by E.	3 N. E.	4 N. E.		
6	4 E.	4 E. by S.	4 S. S. E.	4 N. E. by N.	4 N. E. by E.	3 N. by E.	100	
7	4 N. by E.	4 N. N. W.	3 N.	3 N.	4 N.	5 N. N. W.		
8	4 N. W. by W.	4 N. W. by W.	3 N. W. by W.	3 N. W. by W.	4 N. W. by W.	3 N. W.	102	
9	3 N. W. by W.	2 N. W. by W.	2 N. W. by W.	4 N. W. by W.	4 N. W. by W.	3 N. W. by W.		
10	3 N. W.	4 N. W. by N.	4 N. W.	4 N. W.	3 N. W. by W.	3 N. W. by W.		
11	3 N. E. W.	3 N. N. W.	3 N. W. by N.	1 W. by	3 W. by	2 S. E.	105	
12	1 W. S. W.	Calm	1 S. E.	6 N. E.	6 N. E.	7 N. E. by N.		
13	1 N. E. by E.	5 N. E. by E.	8 N. E. by N.	5 S. W. by	4 W. S. W.	4 E. N. E.		At 1 P. M. wind suddenly became light and variable.
14	1 N. N. E.	2 W.	3 W.	2 W.	4 W.	4 S. W.		
15	Calm	1 S. W.	3 E. by	6 E. by	6 N. E.	4 S. E. by E.	106	
16	4 S. E. by E.	3 S. S. E.	1 E. by	1 W. by	Calm	1 S. E.	100	
17	Calm	1 E.	1 Variable	2 N. E.	2 N. N. E.	2 N. N. E.	105	
18	Calm	1 N. E.	3 E. by	4 E. by	3 E. by	2 E. by		
19	2 E. by N.	2 E. by S.	2 E. by N.	1 S. E. by E.	1 S. E. by E.	1 S. E. by E.	99	At 10 P. M. wind increased, the ship drifting with it.
20	Calm	1 S. W.	Calm	1 W. by N.	Calm			
21	1 S. W.	1 S. W.	1 S. W.	3 S. W. by S.	3 S. W. by S.	5 W. S. W.	112½	
22	3 S. W. by W.	2 W. by S.	2 W. by N.	3 W.	3 W. N. W.	3 W. by S.	114	
23	3 W. S. W.	1 N. W.	2 W.	1 W. S. W.	1 W. S. W.	2 W. S. W.		
24	5-3 W. R. W.	3 W.	4 W.	1 S. W.	1 S. S. W.	1 S.		
25	Calm	Calm	Calm	Calm	Calm	3 S. S. E.	1107	
26	2 S. S. E.	2 S. by W.	1 S. S. W.	1 S. W. by S.	2 S. E. by E.	2 S. E. by E.	101	
27	2 E. by E.	2 E. by W.	2 E. by W.	Calm	2 E. by N.	2 E. by N.	105	A strong easterly current, the ship drifting with it.
28	1 S. E. by E.	Calm	1 W. by S.	4 N. E. by N.	2 S. E. by E.	1 S. E. by E.		
29	3 N. E. by N.	1 N. E. by N.	2 S.	Calm	1 E. S. E.	1 E. S. E.		
30	Calm	1 N. W.	7 N. N. W.	6 N.	1 N. E. by E.	6 W. N. W.		
31	7 S. W. by W.	4 W.	4 W. S. W.	4 S. W.	3 S. W.	5 S.		

August, 1858.—Mean position: Lat. 73° 1' N.; long. 88° 5' W.

DATE.	4h.	5h.	Noon.	4h.	5h.	Midn't.	Vari- ation.	REMARKS.
1	3 W.	4 S. W.	5 S. W. by W.	6 S. W. by W.	5 W. by S.	3 W. by S.	108°	
2	7 W. by S.	6 W. by E.	6 W. S. W.	5 W. by S.	2 S. E. by S.	Calm	W.	
3	1 N. E.	Calm	Calm	1 E. by	2 E. by	Calm		
4	Calm	Calm	Calm	2 S. E.	3 S. E.	1 E. S. E.		
5	Calm	Calm	1 E. by	1 E. by	Calm	Calm		
6	Calm	Calm	Calm	Calm	1 S. E. by E.	2 S. E. by E.		
7	3 S. E. by S.	4 S. E. by E.	5 S. E. by E.	7 S. E. by S.	7 S. E. by S.	7 S. E. by S.	106	(sheet)
8	10 E. S. E.	10 E. S. E.	10 E. S. E.	6 E.	6 E.	5 E.	110	A heavy gale.
9	8 E.	7 E.	3 E.	1 E. S. E.	1 E. S. E.	1 E. N. E.		
10	1 E. N. E.	2 E. N. E.	3 E. N. E.	Calm	Calm	1 Variable	115	
11	1 Variable	2 N. W.	Calm	Calm	Calm	Calm	138	(sheet)
12	Calm	Calm	3 N. by	4 N. E.	4 E.	4 S. E.		
13	3 E.	4 E.	4 E. S. E.	2 E.	2 E.	2 E.		
14	3 N. N. E.	4 N.	5 N.	6 N. N. W.	6 N.	5 N.		
15	6 N. N. E.	6 N. N. E.	6 N. N. E.	6 N. by	6 N. N. W.	6 N. N. W.		
16	6 N. N. W.	4 W. N. W.	4 W. S. W.	6 R. W.	6 S. W.	5 S. W.		
17	4 W. S. W.	6 W. by N.	6 W. by N.	6 W.	4 W.	4 R. W.	140	
18	6 S. W.	4 W.	5 W.	2 E. by	6 R. W.	6 W. by		
19	3 R. R. W.	6 W.	6 W.	3 W.	4 W. S. W.	3 W. S. W.		
20	4 W.	4 W. S. W.	3 W.	6 N. N. W.	7 N. W.	4 W.		
21	5 N. W.	6 N. W.	3 E. by	6 W.	5 W.	4 W.		
22	4 W. S. W.	3 W. S. W.	3 E. by	2 S. S. E.	3 S. E.	3 S. E.		
23	Calm	2 S. W.	6 W.	6 W.	6 W.	6 W.		
24	6 W.	5 W.	4 W.	2 N. E.	6 N. N. E.	7 N. N. E.		
25	6 N. N. E.	6 N. N. W.	6 N. N. W.	4 N. N. W.	6 W. N. W.	6 W. N. W.		
26	6 N. N. W.	6 N. W.	6 N. W.	6 N. W.	6 W. N. W.	6 W. N. W.		
27	1 Variable	Calm	6 W. N. W.	6 W. N. W.	7 N. W.	7 N. W.		
28	6 N. N. W.	6 N. W.	5 N. W.	4 Variable	4 Variable	2 N. E.		
29	3 E. S. E.	3 E. N. E.	3 N. E.	3 E. N. E.	2 E. N. E.	2 E. by		
30	4 N. E.	3 N. N. W.	2 S.	2 S.	2 S. E.	Calm		
31	1 S. E.	3 S. E.	2 N. E.	2 N. W.	3 W.	3 W.		

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.
September, 1858.—Mean position: Lat. 12° N.; long. 94° 4' W.

DATE.	4h.	5h.	Noon.	4h.	5h.	Midn't.
1	2 N. W.	4 N. N. W.	3 S. W.	2 W.	4 W. N. W.	4 W. N. W.
2	5 N. N. W.	5 W. N. W.	4 S. by W.	4 S. E.	5 W. N. W.	4 W. N. W.
3	5 W. by S.	4 W. by S.	5 W. by S.	4 W. by S.	4 W. by S.	5 W. by S.
4	5 W. by S.	5 W. by S.	5 W. by S.	7 W.	5 W. by N.	5 W. by N.
5	7 W.	6 W.	7 W.	6 W.	5 W.	5 W.
6	4 W.	4 W. S. W.	3 S. W.	4 S. by W.	4 S. by W.	4 S. by W.
7	3 S. by W.	3 S. by W.	3 S. by W.	4 S. E. E.	4 S. E.	4 S. E.
8	4 S. E.	4 S. E.	4 S. E. E.	4 S. S. E.	4 S. S. E.	4 W. by S.
9	5 S. W.	5 W. by S.	5 W.	5 W.	4 W.	3 W.
10	3 N. W.	3 S. S. W.	3 S. S. W.	Calm	1 N. W.	3 N. W.
11	3 S. S. E.	3 S. S. E.	4 E.	3 N. E.	3 N. E.	3 N. E.
12	3 N. E.	3 N. E.	4 N. E.	4 N. E.	4 N. E.	4 N. E.
13	3 N. N. W.	Calm	2 S. by W.	3 S. S. W.	1 W.	Calm
14	3 N. E.	3 N. E.	2 S. W. by W.	3 S. E.	3 S. E.	3 N. by E.
15	3 N. by E.	4 N. by E.	3 N. N. E.	5 N. N. E.	5 N. by E.	5 N. by E.
16	5 N. by E.	5 N. by E.	5 N. N. W.	5 N. N. W.	5 N. N. W.	5 N. N. W.
17	5 N. N. W.	5 N. N. W.	5 N. N. W.	4 N. N. E.	4 N. N. E.	4 N. N. E.
18	3 S. S. W.	4 N. N. E.	5 N. N. E.	5 N. W.	4 N. W.	5 N. W.
19	3 N. W.	4 N. N. W.	4 W.	4 W.	5 S. W.	5 S. W.
20	4 N. N. W.	4 N. N. W.	4 N. W.	5 W.	5 S. W.	5 S. W.
21	3 S. S. W.	4 S. W.	4 S. S. W.	4 S. W.	3 N. W.	4 N. W.
22	5 N. W.	5 W. by N.	5 W. by N.	7 W. S. W.	7 W. S. W.	7 S. W.
23	4 W. N. W.	3 W.	2 W.	1 W.	1 W.	7 S. W.
24	5 N. W.	5 W.	5 W.	5 W.	1 W.	5 W. S. W.
25	7 W. N. W.	5 W.	5 W.	5 W.	5 W. by S.	5 W. by S.
26	5 W. S. W.	5 W. S. W.	5 W. S. W.	5 W.	5 W.	5 W.
27*	Calm	3 S. by W.	3 S. by W.	4 S. E.	4 S. E.	4 S. E.
28	3 S. E.	5 S. E.	5 S. E.	5 S. E.	5 S. E.	5 S. E.
29	5 S. W.	5 S. W.	3 S. W.	3 W.	2 N.	3 N. by E.
30	5 N.	5 N. E.	5 N. E.	5 N. E.	5 N. E.	5 N. E.

October, 1858.—At winter quarters: Lat. 12° N.; long. 94° 2' W.

DATE.	4h.	5h.	Noon.	4h.	5h.	Midn't.
1	5 N. E.	5 N. E.	5 N. E.	6 N. E.	5 N. E.	5 N. E.
2	7 N. E. by E.	7 N. E. by E.	7 N. E. by E.	7 N. E.	7 N. E.	7 N. E.
3	7 N. E.	5 N. E.	5 N. E.	7 N. E.	5 N. E.	5 N. E.
4	7 N. E.	5 S. E. E.	5 S. E. E.	5 N. E. by E.	5 N. E.	5 N. E.
5	4 S. by W.	3 S. E.	3 S. E.	2 S. S. E.	2 S. E.	2 S. E.
6	2 S. S. E.	2 S. S. E.	1 S. S. E.	2 S.	4 S. W.	5 S. W.
7	3 S. S. W.	3 S. W.	2 W.	2 S. W.	Calm	Calm
8	Calm	Calm	2 W. N. W.	1 W.	1 W. N. W.	1 W. N. W.
9	3 W.	3 W.	2 W.	1 N. E.	1 N. E.	1 E. by S.
10	Calm	4 N. E.	5 E.	7 N. E.	4 E. N. E.	4 E. N. E.
11	4 E. N. E.	3 N. E.	4 N. E. by N.	5 N. E. by N.	5 N. E. by N.	5 N. E.
12	5 N. E.	7 N. N. E.	3 N. E.	2 N. E.	2 N. E.	1 N. E.
13	3 N. E.	2 N. E. by N.	2 N. E.	3 N. E.	5 N. W.	5 W.
14	7 W. N. W.	5 W. N. W.	5 W. N. W.	5 W. N. W.	5 N. W.	2 N. W.
15	3 N. W.	2 N. W.	2 N. W.	3 N. W.	3 N. by W.	4 N. E.
16	4 N. W.	5 N. W.	5 N. W.	5 N. W.	5 N. W.	4 W. N. W.
17	5 W. N. W.	5 W. N. W.	5 W. N. W.	5 N. W.	5 N. W.	5 N. W.
18	5 N. W.	7 N. W.	7 W. N. W.	4 N. W.	3 N. W.	2 N. W.
19	2 N. N. E.	2 E. N. E.	3 E. N. E.	4 E. N. E.	3 E. N. E.	3 E. N. E.
20	4 N. W.	3 S. E.	3 N. E.	2 N. E.	2 N. E.	2 N. by W.
21	5 N. by E.	5 N. W.	4 N. N. W.	5 N. N. W.	7 N. N. W.	5 N. N. W.
22	5 N. W.	5 N. W.	4 N. W.	3 W. N. W.	3 N. W.	5 N. W.
23	2 N. W.	2 S. E. by S.	3 E. N. E.	2 E. N. E.	4 E. N. E.	1 N. E.
24	1 N. E.	5 S.	5 S.	3 S. E.	1 E. E.	3 W. by N.
25	3 S. W.	5 N. E.	7 N. E.	5 N. E. by N.	4 N. E. by N.	5 N. E.
26	10 N. N. W.	5 W. N. W.	7 W. N. W.	5 N. W.	5 N. W.	5 N. W.
27	10 N. W.	10 N. W.	6 N. W.	7 N. W.	7 N. W.	4 N. W.
28	Calm	1 N. W.	1 N. W.	1 N. W.	1 N. W.	5 N. W.
29	Calm	1 N. W.	1 N. W.	1 N. W.	4 N. W.	5 N. W.
30	7 N. W.	7 N. W.	7 N. W.	5 N. W.	4 N. W.	7 N. W.
31	7 N. W.	4 N. N. W.	4 N. N. W.	4 N. W.	4 N. W.	2 N. W.

* Went into winter quarters, Port Kennedy.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.

November, 1856.—At winter quarters.

DATE.	2 ^d .	4 ^d .	6 ^d .	8 ^d .	10 ^d .	Noon.
1	2 N. W.	1 N. W.	1 W. N. W.	Calm	Calm	Calm
2	Calm	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
3	2 N. W.	2 N. W.	2 W. N. W.	2 W. N. W.	2 W. N. W.	2 W. N. W.
4	2 W. N. W.	2 W. N. W.	2 W. N. W.	2 W. N. W.	2 W. N. W.	2 W. N. W.
5	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
6	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
7	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
8	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
9	2 N. W.	2 N. W.	1 N. W.	1 N. W.	1 N. W.	1 N. W.
10	2 N. W.	2 N. W.	4 N. W.	4 N. W.	2 N. W.	2 N. W.
11	2 N. W.	2 N. W.	2 N. W.	2 N. W.	4 N. W.	2 N. W.
12	1 N. W.	Calm	Calm	1 N. W.	2 N. W.	2 N. W.
13	1 E. N. E.	2 E.	Calm	2 E. N. E.	1 E. N. E.	2 E. N. E.
14	1 E. N. E.	2 E. N. E.	1 E. N. E.	Calm	4 N. W.	2 N. W.
15	2 N. W.	4 N. W.	2 N. E.	2 N. E.	2 N. E.	2 N. E.
16	Calm	Calm	2 N. E.	2 N. E.	2 N. E.	2 N. E.
17	2 N. E.	4 N. E.	4 E. S. E.	1 E. N. E.	2 E. N. E.	2 E. N. E.
18	2 E. N. E.	4 E. N. E.	2 E. N. E.	2 E. N. E.	Calm	Calm
19	Calm	Calm	2 N. E.	2 N. E.	2 E. N. E.	2 E. N. E.
20	2 N. E.	2 N. W.	4 E. N. W.	2 N. W.	4 N. E. by E.	2 N. E. by E.
21	2 E. N. E.	2 E. N. E.	1 E. N. E.	1 E. N. E.	1 N. E.	Calm
22	2 N. W.	2 N. W.	2 N. W.	4 N. W.	2 N. W.	2 N. W.
23	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
24	2 N. W.	2 N. W.	2 N. W.	2 N. W.	1 N. W.	1 N. W.
25	2 N. W.	4 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
26	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
27	4 W. N. W.	4 W. N. W.	Calm	Calm	6 W. N. W.	6 W. N. W.
28	2 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.
29	2 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.
30	10 N. E.	10 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.

DATE.	2 ^d .	4 ^d .	6 ^d .	8 ^d .	10 ^d .	Midn't.
1	Calm	Calm	Calm	1 N. E.	Calm	Calm
2	4 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
3	2 W. N. W.	2 W. N. W.	2 W. N. W.	4 W. N. W.	4 W. N. W.	2 W. N. W.
4	2 W. N. W.	2 W. N. W.	2 W. N. W.	2 W. N. W.	2 W. N. W.	2 W. N. W.
5	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
6	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
7	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
8	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
9	Calm	Calm	Calm	Calm	Calm	Calm
10	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
11	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
12	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
13	2 E. N. E.	4 E. N. E.	2 E. N. E.	2 E. N. E.	2 E. N. E.	2 E. N. E.
14	2 N. W.	4 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
15	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
16	4 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.
17	1 E. N. E.	2 E. N. E.	4 E. N. E.	4 E. N. E.	4 E. N. E.	2 E. N. E.
18	Calm	Calm	2 N. W.	1 N. W.	1 N. W.	Calm
19	2 E. N. E.	2 E. N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.
20	2 E. N. E.	2 E. N. E.	2 E. N. E.	Calm	Calm	1 N. E.
21	1 N. E.	1 N. E.	1 E. N. E.	1 E. N. E.	1 E. N. E.	2 N. W.
22	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
23	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
24	2 N. W.	2 N. E.	Calm	Calm	Calm	Calm
25	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.	2 N. W.
26	4 W. N. W.	4 W. N. W.	4 W. N. W.	4 W. N. W.	4 W. N. W.	4 W. N. W.
27	2 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.
28	2 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.
29	10 N. E.	10 N. E.	10 N. E.	10 N. E.	10 N. E.	10 N. E.
30	2 E. N. E.	2 E. N. E.	2 E. N. E.	2 E. N. E.	2 E. N. E.	Calm

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.

December, 1858.—At winter quarters.

DATE.	2h.	4h.	6h.	8h.	10h.	Noon.
1	Calm	1 N. W.	1 N. W.	2 N. W.	2 N. N. W.	2 N. W.
2	8 N. W.	8 N. W.	8 N. W.	8 N. W.	4 N. W.	4 N. W.
3	4 N. W.	8 N. W.	8 N. W.	4 N. W.	5 N. W.	5 N. W.
4	8 N. W.	8 N. W.	8 N. W.	8 N. W.	7 N. W.	4 N. W.
5	4 N. N. W.	8 N. N. W.	3 N. N. W.	3 N. W.	4 N. W.	3 N. W.
6	6 N. W.	6 N. W.	6 N. W.	5 N. W.	4 N. W.	4 N. W.
7	8 N. W.	6 N. W.	6 N. W.	3 N. W.	2 N. W.	2 N. W.
8	1 N. W.	1 N. W.	2 N. W.	2 N. W.	2 N. W.	Variable
9	3 N. E.	2 N. E.	Calm	2 N. W.	1 N. W.	1 N. W.
10	5 N. W.	6 N. W.	4 N. W.	2 N. W.	3 N. W.	5 N. W.
11	5 N. W.	6 N. W.	4 N. W.	2 N. W.	1 Variable	Calm
12	Calm	1 N. E.	2 N. E.	2 N. E.	2 E. N. E.	2 E. N. E.
13	1 E. N. E.	1 E. N. E.	1 E. N. E.	Calm	2 N. E.	2 N. E.
14	5 E. N. E.	5 E. N. E.	3 E. N. E.	2 N. E.	Variable	Variable
15	5 N. W.	6 N. W.	7 W. N. W.	7 N. W.	8 N. W.	4 N. W.
16	8 N. W.	7 N. W.	8 N. W.	6 N. W.	6 N. W.	7 N. W.
17	8 N. W.	8 N. W.	4 N. W.	3 N. W.	4 N. W.	4 N. W.
18	2 N. E.	3 N. E.	3 N. E.	4 N. E.	4 E. N. E.	4 E. N. E.
19	4 E. N. E.	4 E. N. E.	4 E. N. E.	4 E. N. E.	3 E. N. E.	3 E. N. E.
20	1 E. N. E.	4 N. E.	5 N. E.	6 N. E.	6 E. N. E.	7 E. N. E.
21	8 N. N. W.	4 N. W.	5 N. W.	5 N. W.	6 N. W.	6 N. W.
22	Calm	1 S. W.	2 S. W.	3 E. E.	1 W. by S.	1 S. W.
23	8 S. W.	Calm	1 S. W.	Calm	Calm	Calm
24	Calm	1 N. W.	2 N. W.	4 N. W.	3 N. W.	4 N. W.
25	4 N. W.	4 N. W.	3 N. W.	4 N. W.	3 N. W.	3 W. by N.
26	7 W.	8 W.	6 W.	4 W.	4 W.	5 N. W.
27	8 N. W.	8 N. W.	4 N. W.	6 N. W.	8 N. W.	7 W. S. W.
28	7 W.	4 W.	6 W.	5 W.	4 W.	4 W.
29	6 S. W.	Calm	Calm	Calm	Calm	Calm
30	Calm	Calm	Calm	Calm	1 N. W.	1 N. N. W.
31	Calm	3 N. W.	4 N. W.	4 N. W.	8 N. W.	8 N. W.

DATE.	2h.	4h.	6h.	8h.	10h.	Midn't.
1	2 N. W.	4 N. W.	8 N. W.	4 N. W.	4 N. W.	6 N. W.
2	6 N. W.	8 N. W.	8 N. W.	4 N. W.	2 N. W.	Calm
3	4 N. W.	8 N. W.	8 N. W.	7 N. W.	7 N. W.	7 N. W.
4	4 N. W.	4 N. W.	3 N. W.	3 N. W.	4 N. W.	4 N. W.
5	8 N. W.	8 N. W.	3 N. W.	1 N. W.	3 N. W.	8 N. W.
6	8 N. W.	8 N. W.	7 N. W.	7 N. W.	6 N. W.	4 N. W.
7	3 N. W.	Calm	Calm	Calm	Calm	Calm
8	3 N. E.	4 N. E.	5 N. E.	4 N. E.	5 N. E.	5 N. E.
9	3 N. W.	3 N. W.	8 N. W.	8 N. W.	8 N. W.	3 N. W.
10	7 N. W.	8 N. W.	6 N. W.	4 N. W.	8 N. W.	5 N. W.
11	Calm	Calm	Calm	Calm	Calm	Calm
12	2 N. E.	8 N. E.	2 N. E.	4 N. E.	5 E. N. E.	1 E. N. E.
13	3 N. E.	4 E. N. E.	4 E. N. E.	5 N. E.	5 E. N. E.	4 E. N. E.
14	Calm	Calm	Calm	8 N. W.	8 N. W. by W.	6 N. W. by W.
15	7 N. N. W.	8 N. N. W.	8 N. N. W.	1 N. W.	1 N. W.	8 N. W.
16	8 N. W.	8 N. W.	5 N. W.	4 N. W.	5 N. W.	6 N. W.
17	2 N. W.	1 N. W.	Calm	1 E. N. E.	1 E. N. E.	1 E. N. E.
18	3 E. N. E.	4 E. N. E.	8 E. N. E.	Calm	1 E. N. E.	3 E. N. E.
19	8 E. N. E.	3 E. N. E.	8 E. N. E.	Calm	1 N. E.	8 N. E.
20	8 E. N. E.	5 E. N. E.	4 E. N. E.	1 E. N. E.	3 N. by W.	8 N. N. W.
21	4 N. W.	4 N. W.	4 N. W.	2 N. W.	1 N. W.	Calm
22	2 S. W.	6 S. W.	1 S. W.	1 S. W.	2 S. W.	8 S. W.
23	Calm	1 N. E.	1 N. E.	Calm	Calm	Calm
24	4 N. W.	5 N. W.	4 N. W.	4 N. W.	8 N. W.	5 N. W.
25	3 W. by N.	8 W. S. W.	4 W. S. W.	4 W. S. W.	7 W.	6 N. W.
26	7 W.	7 W.	7 W.	7 N. W.	8 N. W.	8 N. W.
27	7 W. S. W.	7 W. S. W.	6 N. W.	8 N. W.	7 W.	8 N. W.
28	4 W.	4 W.	4 W.	6 W.	3 W.	3 W.
29	Calm	Calm	Calm	1 N. E.	Calm	Calm
30	3 N. W.	8 N. W.	Calm	Calm	Calm	Calm
31	4 N. W.	5 W.	8 W.	8 W.	4 N. W.	8 N. W.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.

January, 1859.—At winter quarters.

DATE.	2d.	4d.	2d.	2d.	10d.	Noon.
1	6 N. W.	4 N. W.	6 N. W.	6 N. W.	1 N. W.	6 N. W.
2	4 N. W.	3 N. W.	4 N. W.	4 N. N. E.	5 N. N. E.	5 N. N. E.
3	4 N. N. W.	4 N.	4 N.	4 N.	6 N.	5 N.
4	3 N.	3 N.	3 N.	4 N. W.	6 N. W.	5 N. W.
5	4 N. W.	3 N. W.	3 N. W.	5 N.	6 N.	4 N.
6	2 N. W.	3 N. W.	3 N. W.	4 N. W.	4 W.	4 W.
7	4 N. W.	4 N. W.	4 N. W.	2 N. W.	3 N. W.	3 N. W.
8	6 N. W.	6 N. W.	6 N. W.	8 N. W.	7 N. W.	6 N. W.
9	Calm	Calm	Calm	3 N. W.	4 N. W.	4 N. W.
10	Calm	1 E. W.	Calm	and variable	1 N. E.	1 N. E.
11	1 N. E.	2 N. E.	3 N. E.	3 N. E.	3 N. E.	4 N. E.
12	4 E. N. E.	4 E. N. E.	4 E. N. E.	3 E. N. E.	2 N. E.	1 Variable
13	1 E. N. E.	Calm	1 N. E.	1 N. E.	Calm	Calm
14	3 W. N. W.	4 W. N. W.	2 W. N. W.	Calm	3 N. W.	2 N. W.
15	3 N. W.	4 N. W.	6 N. W.	6 N. W.	7 N. W.	7 N. W.
16	6 N. W.	6 W. W.	3 N. W.	2 N. W.	4 N. W.	4 N. W.
17	4 W. N. W.	3 W. N. W.	3 N. W.	4 N. W.	4 N. W.	5 W. N. W.
18	6 N. W.	3 N. W.	3 N. W.	Calm	Calm	1 N. E.
19	3 N. E.	4 N. W.	2 N. W.	1 N. W.	3 N. W.	1 N. W.
20	6 N. W.	7 N. W.	7 N. W.	6 N. W.	3 N. W.	3 N. W.
21	1 N. E.	Calm	1 W. by N.	2 N. W.	1 N. W.	1 N. W.
22	4 N. W.	4 N. W.	6 N. W.	6 N. W.	4 N. W.	6 N. W.
23	1 N. W.	4 N. W.	2 N. W.	3 N. W.	2 N. W.	1 N. W.
24	4 W. N. W.	6 W. N. W.	6 W. N. W.	6 W. N. W.	3 W. N. W.	3 W. N. W.
25	6 N. W.	8 N. W.	7 N. W.	5 N. W.	6 N. W.	4 N. W.
26	6 N. W.	4 N. W.	3 N. W.	2 N. W.	4 N. W.	1 Variable
27	1 N. W.	Calm	1 N. E.	Calm	Calm	Calm
28	6 N. W.	3 N. W.	6 N. W.	6 N. W.	3 N. W.	4 N. W.
29	6 N. W.	6 N. W.	3 N. W.	4 N. W.	5 N. W.	6 N. W.
30	1 N. W.	3 N. W.	4 N. W.	3 N. W.	2 N. W.	1 N. W.
31	3 N. E.	2 N. E.	1 N. E.	1 N. E.	1 N. E.	1 N. E.

DATE.	2d.	4d.	2d.	2d.	10d.	Midn't.
1	4 N. W.	3 N. W.	4 N. W.	4 N. W.	6 N. W.	6 N. W.
2	6 N. E.	6 N.	4 N.	2 N.	3 N.	3 N.
3	5 N.	4 N.	4 N.	4 N.	4 N.	4 N.
4	7 N. W.	6 N. W.	6 N. W.	7 N. W.	6 N. W.	4 N. W.
5	Calm	Calm	1 W.	Calm	3 N. W.	2 N. W.
6	4 W.	5 W.	5 W.	4 W.	6 W.	6 W.
7	4 N. W.	3 N. W.	6 N. W.	4 N. W.	7 N. W.	6 N. W.
8	4 N. W.	3 N. W.	Calm	Calm	Calm	Calm
9	5 N. W.	4 N. W.	3 N. W.	3 W.	2 N. N. W.	3 N. W.
10	1 N. E.	Calm	Calm	Calm	3 N. E.	2 N. E.
11	4 N. E.	4 N. E.	4 N. E.	3 N. E.	2 N. E.	2 N. E.
12	2 N. E.	3 N. E.	3 N. E.	3 E. N. E.	2 E. N. E.	1 E. N. E.
13	Calm	Calm	Calm	3 W. N. W.	4 W. N. W.	3 W. N. W.
14	5 N. W.	6 N. W.	4 N. W.	4 N. W.	4 N. W.	3 N. W.
15	6 N. W.	7 N. W.	7 N. W.	6 N. W.	3 N. W.	3 N. W.
16	4 N. W.	4 N. W.	3 N. W.	3 N. W.	4 N. W.	4 N. W.
17	4 W. N. W.	4 W. N. W.	4 W. N. W.	4 N. W.	6 N. W.	7 N. W.
18	3 N. E.	3 N. E.	3 N. E.	3 N. E.	6 N. E.	6 N. E.
19	4 N. W.	6 N. W.	4 N. W.	3 N. W.	3 N. W.	3 N. W.
20	1 N. W.	Calm	Calm	1 N. E.	Calm	1 N. E.
21	2 N. W.	3 N. W.	3 W. N. W.	4 W. N. W.	4 N. W.	6 N. W.
22	5 N. W.	6 N. W.	2 N. W.	2 N. W.	5 N. W.	4 N. W.
23	3 N. W.	3 N. W.	3 N. W.	3 N. W.	3 N. W.	3 W. N. W.
24	4 W. N. W.	6 N. W.	6 N. W.	9 N. W.	6 N. W.	7 N. W.
25	5 N. W.	6 N. W.	5 N. W.	5 N. W.	6 N. W.	2 N. W.
26	1 N. E.	1 N. E.	1 N. E.	Calm	Calm	Calm
27	3 N. W.	3 N. W.	6 N. W.	6 N. W.	4 N. W.	6 N. W.
28	3 N. W.	4 N. W.	6 N. W.	6 N. W.	6 N. W.	6 N. W.
29	4 N. W.	4 N. W.	3 N. W.	2 N. W.	2 N. W.	1 N. W.
30	1 N. W.	2 N. W.	Calm	Calm	2 N. E.	3 N. E.
31	2 N. E.	1 N. E.	1 N. E.	Calm	Calm	Calm

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.

February, 1866.—At winter quarters.

DATE.	2 ^d .	4 ^d .	6 ^d .	8 ^d .	10 ^d .	Noon.
1	Calm	Calm	Calm	Calm	Calm	Calm
2	4 W. by N.	4 W. N. W.	4 W. N. W.	4 N. W.	1 N. W.	1 N. W.
3	1 E. N. E.	1 E. N. E.	1 E. N. E.	1 E. N. E.	1 E. N. E.	1 E. N. E.
4	1 N. E.	Calm	Calm	2 N. W.	2 N. W.	2 N. W.
5	6 N. W.	3 N. W.	2 N. W.	1 N. W.	2 N. W.	2 N. W.
6	6 N. W.	4 N. W.	6 N. W.	6 N. W.	6 N. W.	6 N. W.
7	6 N. W.	6 N. W.	5 N. W.	5 N. W.	5 N. W.	5 N. W.
8	3 N. W.	Calm	Calm	3 N. W.	2 N. W.	2 N. W.
9	3 N. W.	4 N. W.	3 N. W.	Calm	1 W. N. W.	1 W. N. W.
10	1 N. E.	Calm	Calm	Calm	Calm	2 N. W.
11	6 N. W.	6 N. W.	6 N. W.	7 N. W.	6 N. W.	6 N. W.
12	1 N. W.	6 N. W.	1 N. W.	1 N. W.	1 W.	3 W.
13	4 W. N. W.	3 W. N. W.	2 W. N. W.	4 W. N. W.	3 W. N. W.	3 W. N. W.
14	6 W. N. W.	5 W. N. W.	6 N. W.	4 N. W.	4 N. W.	4 N. W.
15	7 N. W.	7 N. W.	7 N. W.	6 W. N. W.	6 W. N. W.	6 W. N. W.
16	6 W.	6 W.	6 W.	6 W.	6 W.	4 W.
17	3 N. W.	1 N. W.	Calm	1 S. E.	Calm	Calm
18	6 W.	4 W.	6 W.	6 W.	6 W.	1 W.
19	2 W.	6 W.	6 W.	6 W.	6 W.	2 W.
20	Calm	Calm	2 N. E.	2 N. E.	3 N. E.	4 N. E.
21	Calm	Calm	Calm	Calm	Calm	Calm
22	6 N. E.	5 N. E.	6 N. E.	5 N. E.	5 N. E.	4 N. E.
23	3 N. E.	1 N. E.	Calm	3 W.	3 W.	1 W.
24	3 N. W.	3 N. W.	3 N. W.	2 W.	3 W.	3 W.
25	6 N. W.	7 N. W.	7 N. W.	7 N. W.	6 W.	4 W.
26	4 N. W.	5 N. W.	6 N. W.	2 N. W.	2 N. W.	1 N. W.
27	2 W.	3 W.	3 W.	4 W.	4 W.	5 W.
28	6 W.	5 W.	5 W.	6 N. W.	6 N. W.	7 N. W.

DATE.	2 ^d .	4 ^d .	6 ^d .	8 ^d .	10 ^d .	Midn.
1	Calm	1 S.	3 N. W.	3 N. W.	3 W. by N.	6 W. by N.
2	1 N. W.	1 S. E.	1 E. N. E.	1 N. E.	2 E. N. E.	2 E. N. E.
3	1 E. N. E.	1 E. N. E.	1 E. N. E.	1 E. N. E.	1 E. N. E.	1 E. N. E.
4	6 N. W.	4 N. W.	6 N. W.	3 N. W.	3 N. W.	4 N. W.
5	3 N. W.	1 N. W.	3 N. W.	2 N. W.	3 N. W.	4 N. W.
6	4 N. W.	4 N. W.	4 N. W.	3 N. W.	6 N. W.	6 N. W.
7	4 W. N. W.	7 W. N. W.	6 W. N. W.	2 N. W.	1 N. W.	1 N. W.
8	7 N. W.	7 N. W.	6 N. W.	6 N. W.	6 N. W.	4 N. W.
9	1 W. N. W.	Calm	1 N. W.	Calm	Calm	1 N. E.
10	1 N. W.	2 N. W.	3 N. W.	1 N. W.	4 N. W.	4 N. W.
11	4 N. W.	5 N. W.	7 N. W.	4 N. W.	7 N. W.	7 N. W.
12	3 W.	6 W.	4 N. W.	3 W. N. W.	4 W. N. W.	4 W. N. W.
13	3 W. N. W.	2 W. N. W.	4 W. N. W.	6 W. N. W.	3 W. N. W.	3 W. N. W.
14	6 N. W.	4 N. W.	4 N. W.	5 N. W.	6 N. W.	6 N. W.
15	6 W. N. W.	5 W. N. W.	6 W. N. W.	6 W. N. W.	4 W. S. W.	4 W. S. W.
16	6 W.	4 W.	4 N. W.	4 N. W.	4 N. W.	4 N. W.
17	2 W.	2 W.	3 W.	4 W.	6 W.	6 W.
18	3 W.	3 W.	3 W.	3 W.	6 W. N. W.	3 W.
19	2 W.	1 W.	Calm	Calm	Calm	Calm
20	3 N. E.	2 N. E.	2 N. E.	3 N. E.	3 N. E.	3 N. E.
21	Calm	Calm	3 N. E.	3 N. E.	6 N. E.	7 N. E.
22	4 N. E.	4 N. E.	4 N. E.	6 N. E.	5 N. E.	6 N. E.
23	1 W.	1 W.	1 W.	1 W.	Calm	1 N. W.
24	3 W.	3 W.	3 W.	3 N. W.	3 N. W.	4 N. W.
25	4 W.	4 N. W.	4 N. W.	4 N. W.	4 N. W.	4 N. W.
26	1 N. W.	1 N. W.	1 N. W.	1 N. W.	Calm	Calm
27	5 N. W.	6 N. W.	7 W.	5 W.	6 W.	7 W.
28	7 N. W.	9 N. W.	8 N. W.	6 N. W.	6 N. W.	6 N. W.

DIRECTION (TRICE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.						
March, 1858.—At winter quarters.						
DATE.	2.	4.	6.	8.	10.	Noon.
1	2 N. W.	2 N. W.	7 N. W.	2 W.	7 W.	2 W.
2	2 W.	2 W.	Calm	Calm	Calm	Calm
3	2 N. E.	2 N. E.	3 N. E.	4 N. E.	4 N. E.	4 N. E.
4	2 N. E.	1 N. E.	2 N. E.	2 N. E.	Calm	Calm
5	Calm	Calm	Calm	Calm	Calm	Calm
6	Calm	Calm	Calm	Calm	Calm	Calm
7	2 N. E.	4 N. E.	4 N. E.	4 N. E.	4 N. E.	4 N. E.
8	2 N. N. E.	3 E. N. E.	3 E. N. E.	3 E. N. E.	3 E. N. E.	3 E. N. E.
9	2 N. N. E.	1 E. N. E.	2 E. N. E.	2 E. N. E.	2 E. N. E.	1 E. N. E.
10	1 N. E.	2 N. E.	Calm	2 N. E.	1 N. W.	1 N. W.
11	2 W. N. W.	7 W. N. W.	7 W. N. W.	7 W. N. W.	7 W. N. W.	7 W. N. W.
12	2 W. N. W.	2 W. N. W.	9 W. N. W.	7 W. N. W.	2 N. W.	1 N. W.
13	4 N. W.	2 N. W.	2 N. W.	4 N. W.	2 N. W.	2 N. W.
14	4 N. W.	2 N. W.	Calm	Calm	Calm	Calm
15	Calm	2 N. E.	5 N. E.	2 N. E.	5 N. E.	1 N. E.
16	2 N. E.	4 N. E.	3 N. E.	4 N. E.	4 N. E.	4 N. E.
17	2 N. W.	6 N. W.	7 N. W.	7 N. W.	2 N. W.	2 N. W.
18	2 W.	4 W.	3 W.	3 W.	3 N. W.	4 N. W.
19	2 N. W.	4 N. W.	2 N. W.	3 N. W.	2 N. W.	2 N. W.
20	Calm	Calm	Calm	Calm	Calm	Calm
21	Calm	Calm	Calm	Calm	Calm	Calm
22	1 N. W.	Calm	Calm	Calm	2 N. E.	1 N. E.
23	2 N. E.	4 N. E.	4 N. E.	2 N. E.	2 N. E.	2 N. E.
24	Calm	Calm	Calm	Calm	1 W.	2 W.
25	1 N. W.	Calm	Calm	1 N. W.	2 N. W.	1 N. W.
26	4 N. E.	3 N. E.	3 N. E.	2 N. E.	5 N. E.	4 N. E.
27	2 N. E.	2 N. E.	4 N. E.	2 N. E.	2 N. E.	Calm
28	-----	1 N. E.	-----	Calm	-----	Calm
29	-----	Calm	-----	-----	-----	2 N. W.
30	-----	2 N. E.	-----	1 N. E.	-----	1 N. E.
31	-----	Calm	-----	Calm	-----	Calm

DATE.	2.	4.	6.	8.	10.	Midn't.
1	8 W.	2 W.	2 W.	3 W.	2 W.	2 W.
2	Calm	Calm	2 N. E.	3 N. E.	4 N. E.	4 N. E.
3	2 N. E.	2 N. E.	1 N. E.	1 N. E.	1 N. E.	2 N. E.
4	Calm	Calm	Calm	Calm	Calm	Calm
5	Calm	Calm	Calm	Calm	Calm	Calm
6	1 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.
7	5 N. E.	2 N. E.	4 E. N. E.	4 E. N. E.	4 E. N. E.	3 E. N. E.
8	2 E. N. E.	2 E. N. E.	2 E. N. E.	3 E. N. E.	2 E. N. E.	3 E. N. E.
9	1 E. N. E.	2 N. W.	4 N. W.	4 N. W.	2 N. W.	Calm
10	Calm	Calm	1 N. E.	2 N. W.	2 N. W.	4 W. N. W.
11	2 N. W.	2 N. W.	2 N. W.	3 N. W.	2 N. W.	2 W. N. W.
12	2 N. W.	2 N. W.	7 N. W.	7 N. W.	4 N. W.	2 W.
13	2 N. W.	2 N. W.	8 N. W.	4 N. W.	5 N. W.	4 N. W.
14	Calm	Calm	Calm	1 N. E.	Calm	Calm
15	7 N. E.	2 N. E.	4 N. E.	4 N. E.	4 N. E.	4 N. E.
16	2 N. E.	2 N. E.	1 N. E.	1 N. E.	Calm	Calm
17	2 N. W.	2 N. W.	5 N. W.	5 N. W.	2 W.	2 W.
18	2 N. W.	2 N. W.	4 N. W.	4 N. W.	4 N. W.	3 N. W.
19	2 N. W.	2 N. W.	1 N. W.	1 N. W.	1 N. W.	Calm
20	Calm	Calm	Calm	Calm	Calm	Calm
21	Calm	Calm	Calm	1 N. E.	1 N. W.	1 N. W.
22	1 N. E.	2 N. E.	2 N. E.	1 N. E.	1 N. E.	4 N. E.
23	2 N. E.	1 N. E.	Calm	Calm	Calm	2 E. W.
24	2 N. W.	2 N. W.	2 N. W.	2 N. W.	1 N. W.	1 N. W.
25	1 N. W.	1 N. E.	2 N. E.	2 N. E.	4 N. E.	4 N. E.
26	2 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.	2 N. E.
27	1 N. E.	2 N. E.	1 N. E.	Calm	2 N. E.	1 N. E.
28	-----	Calm	-----	Calm	-----	Calm
29	-----	2 N. W.	-----	2 N. W.	-----	Calm
30	-----	1 N. E.	-----	1 N. E.	-----	Calm
31	-----	Calm	-----	Calm	-----	2 N. W.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.

April, 1850.—At winter quarters.

DATE.	1h.	2h.	Noon.	4h.	5h.	11h.
1	4 N. W.	6 N. W.	7 N. W.	5-7 W. S. W.	5 W. S. W.	7-9 W. S. W.
2	5 W. S. W.	5 W. S. W.	4 W.	1 W.	3 W.	3 W.
3	6 W.	5 W.	3 W.	1 W.	Calms	1 N. E.
4	3 E. N. E.	3 N. E.	3 N. E.	4 N. E.	3 N.	1 N.
5	4 W. by S.	3 W. by S.	4 W. N. W.	6 W. N. W.	6 W. N. W.	6 W. N. W.
6	6 W.	5 W. S. W.	7 W. S. W.	4 W.	4 N. W.	3 N. W.
7	3 N.	3 N.	1 N. N. W.	3 N.	Calms	Calms
8	Calms	Calms	3 N. E.	3 N. E.	3 N. E.	3 N. E.
9	6 E. N. E.	6 E. N. E.	4 E. N. E.	1 E. N. E.	Calms	2 N. E.
10	Calms	Calms	4 W.	4 W.	2 W.	1 W.
11	Calms	Calms	Calms	Calms	Calms	Calms
12	2 N. W.	2 N. W.	4 W. N. W.	6 W. N. W.	2 W. N. W.	2 W. N. W.
13	Calms	1 Variable	Calms	Calms	2 N. N. E.	3 N. N. E.
14	3 E.	3 E.	4 N. E.	3 N. E.	3 N. E.	4 N. E.
15	1 N. E.	Calms	Calms	Calms	3 E. N. E.	4 E. N. E.
16	4 E. N. E.	4 E. N. E.	3 E. N. E.	4 N. E.	6 N. E.	6 N. E.
17	3 N. E.	6 N. E.	6 N. E.	5 N. E.	4 E. N. E.	6 E. N. E.
18	7 E. N. E.	7 N. E.	6 N. E.	7 N. E.	5 N. E.	1 N. E.
19	1 E. S. E.	4 E. S. E.	2 E. S. E.	2 E. S. E.	2 E. N. E.	3 E. N. E.
20	4 E. N. E.	3 N. E.	3 N. E.	4 N. E.	3 N.	4 N. E.
21	3 N. N. E.	3 N. N. E.	3 N. N. E.	3 N.	4 N.	6 N.
22	4 N.	1 N.	4 W. N. W.	3 W. N. W.	4 N. N. W.	1 N.
23	3 E. by N.	3 E. by N.	4 N. E.	3 N. E.	3 N. E.	3 N. E.
24	5 E. N. E.	6 E. N. E.	6 E. N. E.	3 E. N. E.	3 N. E.	3 N. E. by E.
25	2 E. N. E.	4 E. N. E.	Calms	Calms	Calms	Calms
26	Calms	Calms	1 E. N. E.	3 E. N. E.	3 N. E.	4 N. E.
27	4 E. N. E.	4 E. N. E.	6 E. N. E.	3 E. N. E.	2 E. N. E.	2 N. E. by E.
28	Calms	1 N. E.	1 N. E.	Calms	1 N. E.	2 N. E.
29	3 N. E.	3 N. E.	3 N. E.	3 N. E.	4 N. E.	4 N. E.
30	1 N. E.	2 N. E.	Calms	6 W.	6 W.	9 W.

May, 1850.—At winter quarters.

DATE.	1h.	2h.	Noon.	4h.	5h.	11h.
1	9 W.	9 W.	9 W.	7 W.	4 W.	4 W.
2	3 W.	3 W.	6 W.	6 W.	6 W.	7-9 W.
3	7 W.	6 W.	6 W.	6-8 W.	4-6 W.	6 W.
4	3 W. N. W.	3 W. N. W.	3 W. N. W.	1 W. N. W.	4 W. N. W.	5 W.
5	4 W.	2 W.	1 W.	3 W.	3 W.	4 W.
6	2 W.	1 W.	2 W.	2 W.	6 W. N. W.	4 W. N. W.
7	2 W.	2 W.	6 W.	6 W.	6-8 W.	6-8 W.
8	4 W.	3 W.	6 W.	5 W.	3 W.	Calms
9	7 N. E.	7 N. E.	6 N. E.	3 N. E.	6 N. E.	Calms
10	3 N. W.	5 N. W.	4 N. W.	Calms	Calms	3 W.
11	2 W. by N.	1 W. by N.	5 W. by N.	2 N. E.	3 N. N. W.	2 N. N. W.
12	Calms	Calms	4 N. N. W.	3 N. N. W.	4 N. N. W.	5 N. N. W.
13	3 N. N. W.	3 N. N. W.	3 N. W.	3 N. W.	2 N. W.	Calms
14	Calms	Calms	1 E. N. E.	4 N. E.	3 E. N. E.	2 N. N. E.
15	3 N. N. E.	2 N. N. E.	2 N. N. E.	1 N. N. E.	1 N. N. E.	2 N. N. E.
16	Calms	Calms	4 N. W.	7-8 N. W.	6-7 N. W.	5 N. W.
17	4 N. W.	1 N. W.	3 N. W.	4 N. W.	4 N. W.	6 N. W.
18	Calms	Calms	Calms	1 N. N. W.	Calms	Calms
19	2 N. E.	Calms	Calms	Calms	1 N. E.	2 N. by E.
20	3 N.	2 N.	6 N. W.	7-9 N. W.	6 N. W.	5 N. N. W.
21	3 W. N. W.	1 W. N. W.	Calms	Calms	Calms	2 N. N. E.
22	3 E. N. E.	3 E. N. E.	3 E. N. E.	3 E. N. E.	1 E. N. E.	2 E. N. E.
23	3 E. N. E.	3 E. N. E.	3 E. N. E.	3 E. N. E.	1 E. N. E.	Calms
24	1 E. N. E.	1 N. by E.	3 N. N. W.	2 N. W.	1 N. W.	2 N. W.
25	6 W. by N.	4-5 W. by N.	3-5 N. W.	5 W. by N.	5 W. by N.	3 N. by E.
26	3 N. E.	3 N. E.	6-8 N. W.	3 N. W.	6 W.	6 W.
27	6 W.	5 W.	6 W.	3 W.	1 W.	2 N. E.
28	1 N. E.	Calms	Calms	1 N.	1 N.	1 N.
29	Calms	Calms	Calms	Calms	Calms	1 N.
30	Calms	Calms	6 N. W.	4-6 N. W.	4 N. N. W.	2 N. N. W.
31	4 N. N. W.	3 N. N. W.	4 N. N. W.	3 N. N. W.	3 N. N. W.	3 N. N. W.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.						
June, 1858.—At winter quarters.						
DATE.	2h.	3h.	Noon.	4h.	5h.	11h.
1	4 N. W.	3 N. W.	5-7 N. W.	6-8 N. W.	3 N. N. W.	10 N. N. W.
2	0 N. W.	0 N. W.	0 N. W.	7 N. W.	0 N. W.	0 N. W.
3	4 N. N. W.	1 N.	0 N.	1 N. N. W.	2 N. E.	3 N. E.
4	4 N. E.	4 N. E.	1 N. E.	Calm	2 N. E.	Calm
5	0 N. E.	2 N. E.	Calm	4 N. W.	1 N.	3 N.
6	2 N. E.	3 E. N. E.	2 E. N. E.	Calm	3 N. E.	3 N. E.
7	Calm	0 N. E.	0 N. E. by E.	4 N. E. by E.	0 N. E. by E.	2 N. E. by E.
8	3 N.	4 N.	6 N. W.	7-9 N. W.	7-9 W. by E.	3-7 N. W.
9	3 N.	0 N.	Calm	2 N. E.	1 N. E.	3 N. E.
10	4 N. E.	6 N. E.	0 N. E.	4 N. E.	0 N. E.	Calm
11	6 W. N. W.	4 W.	0 W.	0 N. W.	3-5 N. N. W.	5-5 N. N. W.
12	3 W. by N.	4 W. by E.	0 N. N. E.	0 N. N. E.	4 N. N. E.	3 N. N. E.
13	3 N. E.	0 N. E.	Calm	1 N. W.	3 N. W.	4 N. W.
14	0 N. W.	0 N. W.	0 N. W.	Calm	1 N. W.	1 N. by W.
15	2 W.	2 W.	Calm	Calm	4 N. W.	0 N. W.
16	2 E. N. E.	0 E. N. E.	1 N. E.	1 N. E.	1 N. E.	Calm
17	Calm	Calm	Calm	Calm	Calm	1 N. E.
18	2 E.	1 E.	Calm	5 W.	4 N. W.	3-5 N. N. W.
19	0 W.	0 W.	4 N. E.	4 N. E.	6 N. W.	5 N. W.
20	3 N. W.	0 N. W.	1 N. W.	Calm	3 E.	Calm
21	Calm	1 E. E.	Calm	1 E. S. W.	5 W. N. W.	7 N. W.
22	0 W.	7 W.	5 N. W.	3 N. W.	0 N. W.	1 N. W.
23	6 N. W.	0 N. W.	0 N. W.	0 N. W.	6 N. W.	3-5 N. W.
24	7 N. W.	0 N. W.	7-9 E. W.	0 N. W.	1 N. W.	6 N. W.
25	6 N. W.	0 N. W.	6 N. W.	0 N. W.	7 N. W.	0 N. W.
26	0 N. W.	0 N. W.	0 N. W.	3 N. W.	0 N. W.	Calm
27	1 E. N. E.	1 E. N. E.	2 E. N. E.	3 E. N. E.	1 E. N. E.	1 E. N. E.
28	4 E. N. E.	4 E. N. E.	3 E. N. E.	3 E. N. E.	3 E. N. E.	3 N. E.
29	3 N. E.	1 W.	4 W. N. W.	0 W. N. W.	Calm	1 N. N. W.
30	Calm	2 N. W.	0 N. W.	7 N. W.	7 N. W.	3 N. W.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.

July, 1859.—At winter quarters.

DATE.	2 ^h .	4 ^h .	6 ^h .	8 ^h .	10 ^h .	12 ^h .	Mean.
1	-----	-----	S N. W.	-----	7 N. W.	-----	6 N. W.
2	-----	-----	3 N. W.	-----	4 N. W.	-----	6 N. W.
3	-----	-----	1 E. N. E.	-----	1 E. by N.	-----	2 E. S. E. *
4	-----	-----	1 E. N. E.	-----	1 E. N. E.	-----	3 E. by N.
5	-----	-----	2 E. N. E.	-----	2 E. N. E.	-----	2 E. N. E.
6	Calm	Calm	-----	5 N. W.	5 N. W.	6 W. N. W.	6 W. N. W.
7	6 W. N. W.	4 W. N. W.	-----	3 W. N. W.	2 W. N. W.	2 W. N. W.	1 W. N. W.
8	3 E. N. E.	3 N.	-----	2 N.	3 W. N. W.	3 W. N. W.	4 W. N. W.
9	4 S. S. W.	6 S. S. W.	-----	5 S. S. W.	2 S. S. W.	Calm	2 W. N. W.
10	6 W. by N.	6 W. by N.	-----	6 W. by N.	6 W. by N.	3 W. by N.	6 N. N. W.
11	7 N. E. by N.	6 N. E. by N.	-----	3 N. E. by N.	7 N. E. by N.	7 N. E. by N.	7 N. E. by N.
12	3 N. N. W.	3 W. N. W.	-----	6 W. N. W.	3 W. N. W.	4 W. N. W.	4 W. N. W.
13	3 W. N. W.	4 W. N. W.	-----	6 W. N. W.	6 W. N. W.	6 W. N. W.	5 W. N. W.
14	Calm	Calm	-----	4 N. E.	4 N. E.	3 N. W.	3 N. E.
15	4 N. W.	4 N. W.	-----	4 N. W.	6 N. W.	4 N. W.	3 N. W.
16	4 N. W.	4 N. W.	-----	4 N. W.	4 N. W.	6 N. W.	5 N. W.
17	Calm	Calm	-----	2 N. W.	3 N. W.	6 N. W.	5 N. W.
18	4 N. W.	6 W. by N.	-----	6 N. W.	6 N. W.	6 N. W.	6 N. W.
19	7 N. W.	7 N. W.	-----	3 N. E.	3 N. E.	6 N. E.	6 N. E.
20	6 N. E.	6 N. E.	-----	3 N. E.	3 N. N. W.	3 S. W.	3 S. S. W.
21	6 N. E.	4 N. E.	-----	6 N. E.	5 N. E.	5 N. E.	6 N. E.
22	5 N. E.	4 N. E.	-----	2 N. E.	2 N. E.	3 N. E.	3 N. E.
23	3 N. E.	3 N. E.	-----	3 N. E.	3 N. E.	4 E. by N.	3 E. by N.
24	Calm	Calm	-----	Calm	Calm	Calm	1 S. W.
25	6 N. W.	6 N. W.	-----	6 N. W.	6 N. W.	6 W. S. W.	6 W. S. W.
26	6 W. S. W.	6 W. S. W.	-----	5 W. S. W.	6 W. S. W.	1 W. S. W.	1 W. S. W.
27	3 E. by N.	3 E. by N.	-----	5 E. by N.	6 E. by S.	1 N. E. by S.	1 N. E. by S.
28	Calm	Calm	-----	Calm	Calm	Calm	Calm
29	1 W. by N.	1 W. by N.	-----	2 N. N. E.	3 W. S. W.	3 W. S. W.	2 W. S. W.
30	2 N. W.	3 N. W.	-----	3 N. W.	3 N. W.	3 N. W.	2 N. W.
31	2 N. W.	3 N. W.	-----	3 S. W.	3 S. W.	3 S. W.	3 W.

DATE.	2 ^h .	4 ^h .	6 ^h .	8 ^h .	10 ^h .	12 ^h .	Mean.
1	-----	5 W. S. W.	-----	4 N. W.	-----	4 N. W.	-----
2	-----	3 N. W.	-----	3 N. E.	-----	3 N. E.	-----
3	-----	1 E. S. E.	-----	1 S. E.	-----	1 S. E. by S.	-----
4	-----	1 E. N. E.	-----	1 E. N. E.	-----	3 E. N. E.	-----
5	1 E. N. E.	2 E.	2 E.	3 E. N. E.	1 E. N. E.	-----	1 N. W.
6	6 W. N. W.	6 W. N. W.	6 W. N. W.	6 W. N. W.	6 W. N. W.	-----	6 W. N. W.
7	3 W. N. W.	2 W. N. W.	2 W. N. W.	2 E. N. E.	-----	-----	2 E. N. E.
8	6 W. N. W.	6 W. N. W.	6 W. N. W.	6 W. N. W.	3 W. N. W.	-----	6 S. S. W.
9	3 W. N. W.	3 W. N. W.	6 W. N. W.	6 W. by N.	3 W. by N.	-----	4 W. by N.
10	7 N. N. W.	7 N. N. W.	7 N. N. W.	7 N. N. W.	7 N. E. by N.	-----	6 N. E. by N.
11	4 N. E. by N.	3 N. E. by N.	Calm	Calm	Calm	-----	Calm
12	6 W. N. W.	6 W. N. W.	6 W. N. W.	4 W. N. W.	6 W. N. W.	-----	6 W. N. W.
13	6 N. N. W.	Calm	3 N. W.	3 N. W.	3 W. N. W.	-----	Calm
14	2 N. E.	2 N. E.	4 E. by W.	4 E. by W.	3 N. W.	-----	2 N. W.
15	6 N. W.	4 N. W.	4 N. W.	4 N. W.	3 N. W.	-----	2 N. W.
16	6 N. W.	6 N. W.	3 N. W.	3 N. W.	4 N. W.	-----	4 N. W.
17	4 N. W.	4 N. W.	4 N. W.	4 N. W.	5 N. W.	-----	6 N. W.
18	6 N. W.	6 N. W.	6 N. W.	6 N. W.	5 N. W.	-----	6 N. W.
19	6 N. E.	7 N. E.	6 N. E.	6 N. E.	7 N. E.	-----	7 N. E.
20	2 E. by N.	2 E. by N.	6 E. N. E.	6 N. E.	4 N. E.	-----	6 N. E.
21	6 N. E. by N.	6 N. E. by N.	6 N. E. by N.	6 N. E. by N.	4 N. E.	-----	6 N. E.
22	3 E. N. E.	2 E.	1 E.	Calm	Calm	-----	Calm
23	Calm	1 N. W.	1 N. W.	Calm	Calm	-----	Calm
24	4 S. W.	4 N. W.	4 N. W.	4 N. W.	5 N. W.	-----	6 N. W.
25	6 W. S. W.	6 W. S. W.	6 W. S. W.	6 W. S. W.	6 W. S. W.	-----	6 W. S. W.
26	Calm	3 S.	Calm	Calm	1 E.	-----	1 E.
27	1 N. W.	2 N. W.	Calm	Calm	4 N. E.	-----	Calm
28	Calm	1 S. W.	1 S. W.	Calm	Light	-----	Variable
29	1 S. W.	3 W. S. W.	4 W. S. W.	4 N. W.	3 N. W.	-----	3 N. W.
30	2 N. W.	3 N. W.	3 N. W.	2 N. E.	3 N. E.	-----	3 N. W.
31	3 W. N. W.	3 W. N. W.	3 W. N. W.	3 W. N. W.	6 W. N. W.	-----	3 W.

DIRECTION (TRUE) AND FORCE OF THE WIND OBSERVED ON BOARD THE YACHT FOX.

August, 1859.—Mean position: Lat. 71° 9' N.; long. 72° 8' W.

DATE.	4h.	5h.	Noon.	4h.	5h.	Midn't.	Variation.
1	3 W.	3 W.	1 W.	1 W.	Calm	1 E. by N.	
2	3 E.	2 E.	1 E. by N.	4 E. N. E.	2 N. E.	2 N. E.	
3	2 N. E.	6 N. E.	6 N. E.	6 N. E.	6 N. E.	6 N. E.	
4	6 N. E.	7 N. E.	7 N. E. by E.	6 N. E. by E.	6 N. E. by E.	Calm	
5	Calm	3 N. W.	3 W.	4 W.	2 W.	3 W.	
6	Calm	Calm	3 S. W.	3 N. W.	3 N. W.	2 N. W.	
7	1 W.	2 W.	3 N. W. by W.	4 N. W.	4 N. W.	4 N. W.	
8	6 W.	4 W. E. W.	3 W.	4 W.	4 W.	6 W.	
9	6 W.	4 W. by S.	6 W. by S.	3 N. N. W.	2 W. N. W.	1 E. E.	
10	Calm, light var.	3 E. E.	1 E.	Calm	Calm	3 E.	
11	3 E. by S.	3 E. by S.	4 E. by S.	6 E. S. E.	6 N. E.	6 N. N. E.	
12	6 E. N. E.	4 E. by S.	6 E. by S.	7 E. by S.	7 E. by S.	7 E. by S.	
13	7 E. by S.	7 E. by S.	6 E. by S.	6 E. by S.	6 E. by S.	7 E. by S.	
14	6 E. by S.	6 E. by S.	6 E. by S.	4 E. by S.	5 E. by S.	6 E. by S.	
15	4 E. by S.	4 W. N. W.	8 N. W.	8 W. N. W.	6 N. W. by W.	6 W. by N.	
16	3-4 N. W. by N.	2 W.	4 S. W.	6 S. by E.	3 S. by E.	3 E.	
17	Calm	2 N. by W.	2 N. E.	3 N. E.	3 Variable	2 N. N. E.	
18	1 N. E.	3 N. W.	3 W. N. W.	6 W. S. W.	6 W.	6 W.	
19	6 W. by S.	5 W. N. W.	6 N. W.	6 W.	5 W.	4 W.	
20	2 W.	Calm	1 N. E.	1 N.	6 N.	4 N. N. E.	
21	6 N. W.	3 S. E.	6 S. E.	6 S.	6 S. E. by E.	2 E.	
22	1 W.	6 W.	6 W.	6 W.	6 S. S. E.	5 E. E.	50° W.
23	5 S. E.	6 E. S. E.	3 S. E.	5 E. S. E.	3 E. S. E.	1 E. N. E.	90
24	6 N. N. W.	6 N. N. W.	6 N. W. by N.	7 N. N. W.	6 N. N. W.	6 N. N. W.	83
25	4 N. N. W.	Calm	1 N.	1 N.	2 S. W. & var.	3 S. W. & var.	78
26	3 Variable, S.	3 E.	2 E.	3 N. W.	6 N. W.	1 E.	72
27	3 E.	3 E. N. E.	4 E. N. E.	4 E. N. E.	3 E. N. E.	3 E. N. E.	
28	1 E. N. E.	3 E. N. E.	3 E. S. E.	3 E. N. E.	2 E. N. E.	2 E. N. E.	
29	2 E. N. E.	1 E. N. E.	Calm	4 N. N. E.	2 N. E.	Calm	
30	Calm	Calm	6 N. N. W.	3 N. N. W.	Calm	Calm	
31	2 E. N. E.	2 E. N. E.	3 N. E.	1 N. W.	Calm	Calm	

September, 1859.—Mean position: Lat. 58° 9' N.; long. 40° 9' W.

DATE.	4h.	5h.	Noon.	4h.	5h.	Midn't.	Variation.
1	3 E. N. E.	4 E. N. E.	2 N. N. E.	2 N.	3 N. W.	3 N. W.	73° W.
2	5 N. N. W.	7 N. N. W.	7 N. W.	6 N. N. W.	6 N. N. W.	7 N. N. W.	72
3	6 N. N. W.	4 N. N. W.	4 N. N. W.	3 N. W.	3 E. S. E.	3 S. W.	64
4	4 S. E. W.	4 S. W.	4 S. W. by E.	3 S. S. W.	6 S.	6 S. by W.	63
5	6 S. E. by S.	7 E. E. by S.	7 S. S. W.	7 S.	3 W. S. W.	2 W. S. W.	60
6	1 S. W. by S.	1 S. W. by S.	6 S. W. by S.	4 S. S. W.	4 S. S. W.	4 S. W. by W.	60
7	3 W.	2 W.	3 W. by N.	6 W.	3 W.	6 W. N. W.	65
8	Calm	2 N. E.	3 N. E.	4 N. E.	6 N. N. E.	7 N.	54
9	7 N. by W.	8 N. N. W.	8 N. W.	6 W. N. W.	6 W. N. W.	4 W. N. W.	63
10	4 W. S. W.	4 W. N. W.	4 W. N. W.	6 W. N. W.	6 W. N. W.	6 W. N. W.	52
11	7 W. N. W.	7 W.	7 W. N. W.	7 W. N. W.	7 W. N. W.	7 W. N. W.	60
12	7 W. S. W.	7 S. W.	6 S. S. W.	6 S. W.	6 W. S. W.	6 W. S. W.	48
13	3 E. S. W.	3 E.	4 S. W.	4 S. W.	6 S. W.	7 S. W.	46
14	7 S. S. W.	6 S. W.	6-7 W. S. W.	7 W.	7 W. N. W.	7 W. N. W.	43
15	7 W. N. W.	6 N. W.	8 N. W.	8 N. W.	6 N. W.	6 N. W.	40
16	7 N. W. by N.	6 N. N. W.	5 N. N. W.	6 N. N. E.	2 N. E.	1 N. E.	36
17	6 S. S. W.	6 S. S. W.	4 S. S. W.	6 S. S. W.	6 S. S. W.	6 S. S. W.	32
18	6 S. S. W.	6 S. W.	2 W.	6 S. W. by S.	6 S. W. by S.	8 W.	

* Steamed out of Port Kennedy.

Method of Reduction.—The method of reduction used is the same as that employed in the discussion of Kane's observations—it is by Lambert's improved formula, so as to include the velocity of the wind, and not the relative frequency alone. It is given in its outline in the article "Meteorology," in the 8th edition of the *Encyclopædia Britannica*.

Let $\theta_1, \theta_2, \theta_3, \dots$ be the angles which the directions of the wind make with the meridian (true), reckoned round the horizon, according to astronomical usage, from the south, westward to 360° , a direction corresponding to that of the rotation of the winds in the northern hemisphere; and v_1, v_2, v_3, \dots its respective velocities, which may be supposed expressed in miles per hour; and let the observations be made at equal intervals (for instance, hourly). Adding up all velocity-numbers referring to the same wind during a given period (say one month), and representing these quantities by s_1, s_2, s_3, \dots , the number of miles of air transferred bodily over the place of observation by winds from the southward is expressed by the formula

$$R_s = s_1 \cos \theta_1 + s_2 \cos \theta_2 + s_3 \cos \theta_3 + \dots$$

And for winds from the westward

$$R_w = s_1 \sin \theta_1 + s_2 \sin \theta_2 + s_3 \sin \theta_3 + \dots$$

The resulting quantity R , and the angle ϕ it forms with the meridian, is found by the expressions

$$R = \sqrt{R_s^2 + R_w^2}, \text{ and } \tan \phi = \frac{R_w}{R_s}$$

The general formulae, in the case of eight principal directions θ , assume the following convenient form:—

$$R_s = (S-N) + (S W-N E) \sqrt{\frac{1}{2}} - (N W-S E) \sqrt{\frac{1}{2}}$$

$$R_w = (W-E) + (S W-N E) \sqrt{\frac{1}{2}} + (N W-S E) \sqrt{\frac{1}{2}}$$

Where the letters $S, S W, W$, etc., represent the sum of all velocities during the given period, or the quantity of air moved in the directions $S, S W, W$, etc., respectively; R_s represents the total quantity of air transported to the northward, and R_w the same transferred to the eastward. These formulae, for practical working, may be put in the following shape:—

$$\begin{array}{ll} \text{Put } S-N=a & S W-N E=c \\ W-E=b & N W-S E=d \end{array}$$

Then

$$R_s = R \cos \phi = a + 0.707 (c-d)$$

$$R_w = R \sin \phi = b + 0.707 (c+d).$$

Since R_s, R_w, R , represents the quantity of air passed over during the given period in the direction $0^\circ, 90^\circ, \phi^\circ$, respectively, we must, in order to find the mean velocity for any resulting direction, divide by n , or by the number of observations during that period; we then have

$$V_s = \frac{R_s}{n}, \quad V_w = \frac{R_w}{n}, \quad \text{and } V = \frac{R}{n}.$$

A particle of air which has left the place of observation at the commencement of the period—of a day, for instance—will be found at its close in a direction $180^\circ + \phi$, and at a distance of R miles, equal to a movement with an average velocity of

$\frac{R}{n}$; this supposes an equal and parallel motion of all particles passing over; the length of the path described by each can be found by the summation of all the v 's (for each hour) during the period.

The great variability in the direction and force of the atmospheric motion renders the taking of resulting values for short intervals unnecessary, and a subdivision of the reduction into monthly periods has been found convenient.

To include more than eight directions into the discussion would not only render it very tedious, but would give no materially increased accuracy. Observed directions, intermediate of the eight directions, are referred to the nearest principal direction; and if midway, and occurring more than once, they are referred to the nearest preceding and following direction alternately.

The winds observed during July and August, 1857, and in September, 1859, cannot well be combined with the body of the observations, and have, therefore, not been reduced.

To illustrate the process of reduction, the working up of the observations for direction and force of the wind in the month of September, 1857, is here given as an example.

ABSTRACT OF THE QUANTITY OF WIND REFERRED TO THE EIGHT PRINCIPAL DIRECTIONS AND OBSERVED IN THE MONTH OF SEPTEMBER, 1857, BETWEEN LATITUDES 75° S. AND 75° N., AND LONGITUDES 64° E. AND 66° W.																
Observations at 4, 8, 12, A. M. and P. M.																
(The few intermediate observations on the last day of the month were not taken into account.)																
True direct'n.	1st.	2d.	3d.	4th.	5th.	6th.	7th.	8th.	9th.	10th.	11th.	12th.	13th.	14th.	15th.	
S. . . . .	...	10	...	20	...	...	...	72	152	15	36	...	20	66	4	
N. . . . .	...	...	2	...	...	10	24	...	...	...	...	...	...	...	...
W. . . . .	...	...	3	...	...	...	24	48	...	...	...	...	...	...	...
E. . . . .	...	4	1	...	86	8	14	10	...	...	...	...	...	17	24	1
S. W. . . .	...	8	...	...	...	...	...	...	...	...	...	...	...	...	...
N. E. . . .	...	...	...	...	1	10	17	...	...	...	...	...	...	...	...
N. W. . . .	...	6	1	1	...	...	10	...	...	...	...	...	...	4	...	
S. E. . . .	10	10	...	27	8	10	42	104	24	24	96	...	...	...	...
Sum . . .	27	22	6	103	17	84	117	224	178	41	149	31	69	132	15	

True direct'n.	16th.	17th.	18th.	19th.	20th.	21st.	22d.	23d.	24th.	25th.	26th.	27th.	28th.	29th.	30th.	Fans
S.	385
N.	2	8	8	8	4	...	...	...	...	...	...	...	...	...	86
W.	4	28	...	...	50	49	...	...	...	...	...	...	...	...	354
E.	19	...	...	...	...	...	...	...	...	258
S. W.	8
N. E.	4	...	28	4	...	...	...	...	...	...	...	...	...	...	163
N. W.	2	27	10	44	17	121	13	31	57	40	14	...	11	70	422
S. E.	258
Sum . . .	75	32	63	47	56	111	170	13	97	19	48	68	9	11	70	2069

By preceding formula we find—

$$\begin{array}{rcl}
 e = -145 & 0.7 (e-d) = -190 & R_e = +109 \\
 d = +126 & 0.7 (e+d) = -13 & R_d = +83 \\
 e-d = -271 & a = +239 & R = +137 \\
 e+d = -19 & b = +96 & \phi = 37^\circ
 \end{array}$$

equivalent to a resulting direction of the wind S. W. $\frac{1}{2}$ S.

The following table shows the velocity-numbers for each of the principal eight winds, as well as the resulting direction of the wind, for each month between Sept. 1857, and Aug. 1859, as deduced by application of the preceding formulae.

1857-'58. True direction.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.	JANUARY.	FEBRUARY.
	Mean Lat. 73° 5 Long. 83.0 6 obs. a day.	Mean Lat. 73° 9 Long. 87.0 12 obs. a day.	Mean Lat. 74° 9 Long. 89.1 12 obs. a day.	Mean Lat. 74° 5 Long. 87.4 12 obs. a day.	Mean Lat. 73° 2 Long. 83.7 12 obs. a day.	Mean Lat. 71° 6 Long. 80.8 12 obs. a day.
S.	365	346	229	449	145	124
N.	86	108	0	331	531	2381
W.	354	476	1121	384	993	151
E.	256	377	687	23	118	1
S. W.	8	212	700	135	93	27
N. E.	153	868	417	174	192	235
N. W.	4-2	1357	1846	2936	2804	3452
S. E.	356	9-8	1054	698	181	388
φ	37°	176°	86°	124°	121°	154°
1858. True direction.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.
	Mean Lat. 69° 4 Long. 59.1 12 obs. a day.	Mean Lat. 66° 5, Long. 57° 7. From 1st-17th P.m. 10th-20th. 12 obs. a day.	Mean Lat. 68° 7 Long. 63.7 8 obs. a day.	Mean Lat. 74° 8 Long. 66.1 8 obs. a day.	Mean Lat. 74° 4 Long. 78.4 8 obs. a day.	Mean Lat. 73° 1 Long. 68.8 8 obs. a day.
S.	355	0	221	63	11	22
N.	1465	3366	138	128	136	135
W.	137	81	38	48	116	289
E.	239	92	251	311	184	231
S. W.	361	23	131	35	368	321
N. E.	304	246	474	82	400	201
N. W.	3112	1135	498	457	286	814
S. E.	764	0	563	294	165	477
φ	149°	195°	264°	224°	172°	114°
PORT KANAWAT. 1858-'59. True direction.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.	JANUARY.	FEBRUARY.
	8 obs. a day.	8 obs. a day.	10 obs. a day.	10 obs. a day.	12 obs. a day.	12 obs. a day.
S.	134	85	0	0	0	1
N.	167	68	21	10	369	0
W.	1071	59	106	773	200	1166
E.	27	25	4	0	0	0
S. W.	543	67	0	166	0	46
N. E.	416	1512	2193	7-0	469	444
N. W.	798	2132	4810	5721	4496	3336
S. E.	369	90	17	10	0	2
φ	95°	168°	160°	156°	142°	129°
PORT KANAWAT. 1859. True direction.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.
	12 obs. a day. The numbers for the last 4 days were doubled.	8 obs. a day. The two odd hours were treated like even hours.	8 obs. a day. Odd and even hours treated alike.	8 obs. a day. Odd and even hours treated alike.	12 obs. a day. Numbers for the first 4 days were doubled.	8 obs. a day.
S.	0	0	0	0	1	63
N.	0	103	33	88	48	50
W.	288	318	1545	276	233	609
E.	0	34	0	1	116	681
S. W.	4	212	0	1	563	69
N. E.	1254	1341	282	847	1438	808
N. W.	2152	313	859	1889	3027	715
S. E.	0	26	0	1	14	536
φ	156°	166°	117°	146°	151°	197°

The above results for the resulting direction of the wind in each month, when expressed to the nearest half point, are contained in the following table:—

RESULTING DIRECTION OF THE WIND.

First year.			Second year.		
1857	September	S. W. $\frac{3}{4}$ S.	1858	September	W. $\frac{3}{4}$ N.
	October	N. $\frac{1}{4}$ W.		October	N. by W.
	November	W. $\frac{3}{4}$ N.		November	N. N. W. $\frac{1}{4}$ N.
	December	N. W. by W.		December	N. W.
1858	January	N. W. $\frac{1}{4}$ W.	1859	January	N. W. $\frac{3}{4}$ N.
	February	N. N. W. $\frac{1}{4}$ W.		February	N. W. $\frac{1}{4}$ W.
	March	N. N. W. $\frac{3}{4}$ W.		March	N. N. W.
	April	N. N. W. $\frac{1}{4}$ N.		April	N. N. E. $\frac{1}{4}$ N.
	May	E. $\frac{1}{4}$ N.		May	W. N. W. $\frac{1}{4}$ N.
	June	N. E.		June	N. W. by N.
	July	N. $\frac{3}{4}$ W.		July	N. N. W. $\frac{1}{4}$ W.
	August	W. N. W.		August	N. N. E. $\frac{1}{4}$ N.

For the combination of the monthly results to quarterly, half-yearly, and yearly results, we have to double the numbers for R_s and R_w for all months in which but 6 observations a day were taken, in order to make them correspond to the numbers for the other months in which 12 observations a day were recorded; the latter number of observations having been adopted as standard. The numbers in the second column for April, 1858, were doubled and added to the corresponding numbers in column one, before the formula was applied.

The following table contains the resulting values for R_s and R_w as they resulted (or in part were referred to) from bi-hourly observations:—

Month.	R_s	R_w	Month.	R_s	R_w
1857			1858		
September	+ 218	+ 196	September	— 458	+ 2092
October	— 432	+ 31	October	— 4769	+ 932
November	— 157	+ 1297	November	— 4771	+ 1782
December	— 672	+ 1303	December	— 5034	+ 2944
1858			1859		
January	— 2502	+ 2733	January	— 3775	+ 2942
February	— 673	+ 2278	February	— 5009	+ 3226
March	— 2674	+ 1181	March	— 2367	+ 133
April	— 5059	+ 1586	April	— 2188	— 630
May	— 95	— 1058	May	— 1604	+ 3208
June	— 374	— 379	June	— 3523	+ 2412
July	— 684	+ 106	July	— 2769	+ 1571
August	— 656	+ 1422	August	— 1334	— 448

RESULTING DIRECTION OF THE WIND IN THE DIFFERENT SEASONS OF THE YEAR.						
Season.		ΣE_s	ΣE_w	θ	Direction.	Mean lat. Mean long.
1857	Autumn	— 371	+ 1494	105°	W. by N. $\frac{1}{2}$ N.	79° 1 N. 67° 3 W.
1857-'58	Winter	— 787	+ 3314	142	N. W. $\frac{1}{2}$ N.	73.0 64.0
1858	Spring	— 723	+ 1911	167	N. by W.	68.0 54.8
"	Summer	— 1714	+ 1156	146	N. W. by N.	74.0 75.0
Winter half, November-April . .		— 1547	+ 1040	147°	N. W. by N.	71.5 63.0
Summer half, May-October . .		— 2024	+ 297	172	N. $\frac{1}{2}$ W.	73.4 86.6
1857-'58	Year	— 1741	+ 10757	149°	N. N. W. $\frac{1}{2}$ W.	72.5 65.5
1858	Autumn	— 998	+ 1696	151°	N. N. W. $\frac{1}{2}$ W.	Port Kennedy, Lat. 72° 0 N., Long. 54° 2 W.
1858-'59	Winter	— 936	+ 9152	136	N. W.	
1859	Spring	— 6219	+ 3694	150	N. N. W. $\frac{1}{2}$ W.	
"	Summer	— 7623	+ 3535	156	N. N. W.	
Winter half, November-April . .		— 18734	+ 11237	149°	N. N. W. $\frac{1}{2}$ W.	
Summer half, May-October . .		— 14507	+ 10057	144	N. W. by N.	
1858-'59	Year	— 33231	+ 21894	147°	N. W. by N.	

At Port Kennedy, the resulting direction of the wind is remarkably constant for the several seasons, and the differences with the corresponding values for Baffin Bay are also small, the final direction for the two localities being practically identical.

For further comparison, I add a table showing the resulting (true) direction of the wind for Baffin Bay (lat. 72° 5 N., long. 65° 8 W.), Van Rensselaer Harbor¹ (lat. 78° 6 N., long. 70° 9 W.), and Port Kennedy (lat. 72° 0 N., long. 94° 2 W.)

Season.	Baffin Bay.	Van Rensselaer Harbor.	Port Kennedy.
Autumn	105°	82°	151°
Winter	142	351	136
Spring	167	21	150
Summer	146	73	156
Year	149	19	147

These numbers show that the wind at Van Rensselaer Harbor is rather anomalous in its direction when compared with either of the two more southern stations, the resulting directions being S. by W. $\frac{1}{2}$ W., whereas at Baffin Bay and Port Kennedy, it is N. W. by N. $\frac{1}{2}$ N.

Average Velocity of the Resulting Wind.—We find the average velocity of the resulting wind by dividing the quantity R by the actual number of observations (exclusive of calms). This velocity, on account of the neutralization of the opposing winds, is necessarily smaller than the average velocity of the winds.

¹ See my discussion of the winds in the Smithsonian Contributions to Knowledge, Vol. XL. Meteorological Observations in the Arctic Seas, by E. K. Kaen, U. S. N., p. 17. It is to be remarked that, according to Mr. Sonotag and Dr. Hayes, the true direction, and not the magnetic direction, was observed at Van Rensselaer Harbor—a statement otherwise confirmed in the discussion of the winds at that station; a corresponding change of the results is therefore to be made. [S.]

Thus, for September, 1857, we found $R = 137$, and n = number of observations (minus calms) = 170, hence $V = 0.8$. The following table contains the quantities for each month, season, and the whole year. The numbers for April, 1858, were changed so as to refer to 12 daily observations throughout. A similar remark applies to March, 1859, and to July, 1859.

MEAN VELOCITY, IN MILES PER HOUR, OF THE RESULTING WIND.									
		R	n	V			R	n	V
1857	September . . .	137	170	0.8	1858	September . . .	1444	176	8.3
	October . . .	433	349	1.3		October . . .	2422	179	13.5
	November . . .	1317	338	3.6		November . . .	3083	323	12.6
	December . . .	1864	257	4.4		December . . .	4227	320	13.2
1858	January . . .	3628	263	16.0	1859	January . . .	4795	332	14.4
	February . . .	3199	315	16.5		February . . .	4146	293	14.2
	March . . .	2107	270	8.4		March . . .	3546	260	9.6
	April . . .	2346	349	15.0		April . . .	1139	152	7.5
	May . . .	531	152	3.5		May . . .	1847	154	12.0
	June . . .	263	156	1.7		June . . .	2335	155	15.0
	July . . .	346	161	2.2		July . . .	3184	332	9.6
	August . . .	783	160	4.9		August . . .	704	167	4.2

	Baffin Bay.	Port Kennedy.
V in Autumn	1.9	12.5
" Winter	10.3	13.9
" Spring	9.0	9.6
" Summer	3.9	9.3
V for the year	6.0	11.4

At Van Rensselaer, the annual mean was $V = 4.5$.

Average Velocity of the Winds.—The average velocity with which each of the eight principal winds passes over the place of observation in each month, season, and whole year, is found by dividing the sum of the velocity-numbers of each wind by the number of entries in the period; thus, for the month of September, 1857, we have—

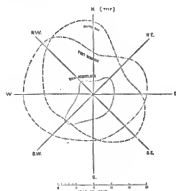
True direction of the wind.	Sum of velocities.	Number of entries.	Mean velocity.
S.	385	20	19.3
S. W.	8	2	4.0
W.	354	20	12.3
N. W.	492	47	10.3
N.	86	18	4.8
N. E.	153	14	10.9
E.	258	22	11.7
S. E.	356	18	19.8
Sum	2082	170	12.3

The following table shows the mean velocity of the winds, expressed in miles per hour, for each month of observation:—

Year.	True direction.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
1857-58.	S.	5.4	6.5	18.0	25.2	18.4	16.6	2.2	5.2	19.2	15.4	11.5	11.0	12.5
	S. W.	5.8	3.0	12.9	18.5	6.9	3.2	11.9	17.4	4.0	7.1	16.7	4.5	10.8
	W.	18.4	6.9	6.7	9.1	1.0	9.6	6.7	23.1	12.2	9.9	20.0	10.0	13.9
	N. W.	22.5	29.0	24.4	20.9	16.8	9.3	12.0	26.3	10.3	11.5	16.0	15.2	18.8
	N.	11.9	25.1	21.6	33.2	17.5	6.3	15.6	19.3	4.7	7.7	..	8.9	20.6
	N. E.	6.0	11.6	7.2	8.4	13.3	4.7	19.3	13.7	11.0	18.1	13.0	5.6	11.0
	E.	5.4	1.0	10.9	13.0	22.8	15.6	9.6	20.7	11.7	6.7	10.6	10.9	13.9
	S. E.	4.1	24.1	21.8	19.5	16.4	10.3	6.0	18.4	10.8	20.2	25.6	18.1	16.8
Mean		14.1	22.0	18.3	21.6	14.8	8.2	11.2	20.0	12.3	12.5	17.7	11.7	16.0
1858-59.	S.	..	1.0	..	..	..	..	1.0	11.9	13.4	21.2	..	..	13.2
	S. W.	..	24.5	4.0	30.3	..	1.0	15.1	11.8	18.2	12.4	..	11.7	16.2
	W.	18.1	16.9	16.2	16.2	22.6	21.2	17.9	16.4	23.8	8.4	17.7	25.7	19.8
	N. W.	17.2	16.2	22.2	16.4	15.6	24.8	18.7	21.6	23.4	28.0	22.7	19.2	20.4
	N.	16.5	..	..	8.8	3.6	7.3	12.0	7.5	16.7	12.7	10.5	10.0	11.7
	N. E.	12.0	9.9	9.1	15.6	9.1	10.3	18.1	14.8	16.7	22.5	20.3	10.8	14.3
	E.	..	..	..	8.5	..	3.0	8.2	21.4	13.5	12.5	4.0	..	15.1
	S. E.	..	1.0	..	6.5	..	1.0	1.7	18.1	18.4	6.9	17.0	10.9	12.8
Mean		18.5	17.1	14.6	15.4	15.7	18.0	17.1	17.5	20.0	22.5	21.7	17.2	17.8

In the first year, while in Baffin Bay, the velocity of the wind was greatest in the months of February and March, and least in the months of June and July; in the second year, at Port Kennedy, it was greatest in October and November, and least in March and April. In Baffin Bay, during 1857, '58, the N. W. and N. winds blew with the greatest strength, and the S. W. and N. E. with the least; whereas, in the following year, at Port Kennedy, it was the W. and N. W. wind which blew strongest, and the N. and S. E. which blew with the least force. The mean velocity of each of the eight winds is shown in the annexed diagram, which contains also, for comparison, the velocity of the winds as observed at Van Rensselaer Harbor.

Fig. 1.



The velocity of the wind being only estimated at each place, the apparently small velocities at Van Rensselaer Harbor may, in a measure, be due to a different scale of estimating, although the great number of calms seems to point to their reality.

We have next to consider the relative frequency of each wind; for this purpose it is only necessary to refer the number of entries, n , of each wind, as used in the preceding computation for the velocity, to an equal number of hours of observation for each month. This has been done by simple proportion, and the num-

bers were all referred to twelve observations a day; thus, the numbers* of entries, for all months of six observations a day, have all been doubled. The following table contains the relative frequency of each wind:—

	True direction.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
1851-54. Baffin Bay.	S.	27	19	22	8	24	10	10	8	40	15	10	41	243
	S. W.	16	9	28	26	34	22	62	36	4	30	42	20	345
	W.	54	22	20	13	3	10	36	68	10	49	16	39	426
	N. W.	181	125	151	165	18	38	64	62	24	115	115	154	1233
	N.	45	103	68	125	16	40	20	14	31	14	6	39	520
	N. E.	32	20	42	44	64	34	48	44	28	37	32	31	456
	E.	22	1	22	4	22	40	32	32	44	43	35	2	296
	S. E.	37	16	35	22	72	54	48	56	36	48	40	41	563
	Calm	9	21	2	11	70	48	60	62	20	22	21	18	341
Sum and check		372	336	372	358	360	349	370	368	360	372	360	372	4360
1852-53. Port Kennedy.	S.	0	1	0	0	0	0	1	14	20	5	0	0	44
	S. W.	0	2	0	14	0	2	30	16	62	14	0	37	150
	W.	11	69	19	3	110	26	13	62	50	14	6	30	400
	N. W.	256	174	100	36	110	152	157	66	68	152	203	104	1670
	N.	22	0	0	24	10	16	4	9	20	6	2	1	121
	N. E.	37	45	140	172	70	106	88	60	154	108	73	1104	
	E.	0	0	0	8	0	3	23	64	4	4	1	0	108
	S. E.	0	2	0	0	0	3	8	26	49	25	1	1	114
	Calm	44	43	112	56	64	50	42	38	6	14	20	53	563
Sum and check		370	336	371	358	372	360	372	370	360	372	360	368	4360

In the above table a few variable winds have not been counted in.

In both localities the N. W. is the most frequent next to this, in Baffin Bay the N. wind, and at Port Kennedy the N. E.; the least frequent wind in both seasons is from the S. and E. The results at Port Kennedy are remarkable for the scarcity of winds from the S., E., and S. E. This is most probably due to the configuration of the surrounding land; the same cause may also explain the scarcity of winds from the north, midway between the most frequent N. W. and N. E. winds. The following diagram exhibits the relative frequency of each wind for the two localities, to which has been added the result obtained at Van Rensselaer Harbor (the numbers for that harbor refer to twenty-four observations a day, and were therefore halved in order to make them comparable with the numbers deduced above.)

RELATIVE FREQUENCY OF THE WINDS.

True direction.	Baffin Bay.	Van Rensselaer Harbor.	Port Kennedy.
S.	243	410	44
S. W.	345	354	159
W.	426	116	488
N. W.	1233	350	1670
N.	520	144	121
N. E.	456	27	1104
E.	299	56	108
S. E.	563	411	114
Calm	341	2532	561

In Baffin Bay the calms occur less frequently than any of the eight winds; at Port Kennedy they are more frequent; the frequency of the calms at Van Rensselaer

exceeds that at Baffin Bay and Port Kennedy in the ratio of nearly 7 and 6 respectively.

The preponderance of the N. W. and N. E. winds at Port Kennedy is very striking on the diagram.

The quantity of air which has been transferred over the place of observation in a given period, is directly proportional to the velocity-numbers, or the number of miles travelled over by a particle of air in any direction during the period. The observations not having all been made at regular and equal intervals of two hours, the numbers indicating the relative quantity of air in April, 1858, March and July, 1859, were referred by simple proportion to twelve observations a

day, to which all other numbers refer; the number for all months of six observations a day have been doubled.

RELATIVE QUANTITY OF AIR PASSED OVER THE PLACE OF OBSERVATION.

Referring to 12 observations a day.

Year.	True direction.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Sum.
1857-1858 Baffin Bay.	S.	145	124	395	210	443	166	22	44	770	246	220	449	3233
	S. W.	93	27	361	833	263	70	736	862	16	213	100	135	2807
	W.	993	181	137	127	2	86	236	1570	708	476	1121	344	6067
	N. W.	2804	3632	3118	2133	674	914	766	1628	904	1327	1846	2036	22236
	N.	531	2381	1405	4198	276	252	272	270	172	108	0	331	16256
	N. E.	156	333	394	306	846	164	920	608	306	668	417	174	5158
	E.	116	1	239	92	562	622	369	602	816	377	687	21	4303
	S. E.	151	166	764	430	1146	595	330	954	712	656	1014	660	8161
Sum		6127	6945	6177	8043	4892	2680	2692	6392	4164	4346	6015	4194	62993
1858-1859 Port Kennedy.	S.	0	1	0	0	0	0	1	166	268	170	0	0	603
	S. W.	0	40	4	424	0	2	563	118	1126	174	0	105	2659
	W.	260	1169	266	616	2490	582	233	1018	2142	118	106	773	9705
	N. W.	4406	5356	2152	626	1718	3776	3627	1430	1592	4264	4610	3721	34558
	N.	369	0	0	246	65	116	48	60	234	76	21	10	1306
	N. E.	469	444	1234	2502	564	1694	1438	1216	832	3024	2193	769	15981
	E.	0	0	0	66	0	15	152	1370	54	50	4	0	1723
	S. E.	0	2	0	62	0	2	14	470	738	160	17	10	1485
Sum		5435	5601	3678	4674	4038	5560	5463	5048	7096	8056	6951	5493	68108

The following table contains the comparative values at Van Rensselaer Harlot

with the above, the result at Van R. having first been halved to refer to twelve observations a day.

Type direction.	Baffin Bay.	Van Kessel Harbor.	Port Kennedy.
S.	3233	3060	606
S. W.	3807	4002	2659
W.	6007	481	9705
N. W.	22236	1613	34658
N.	10256	500	1306
N. E.	5188	168	15961
E.	4105	336	1723
S. E.	8161	2600	1485
Sum	62993	12759	68108

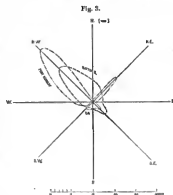
These results of the relative quantity of air moved over each place are also shown in the annexed diagram.

Owing to the small differences in the velocity of the several winds, the above diagram of the quantity of wind resembles that of the frequency of the winds, at least, in all its characteristics.

It cannot be expected that the relations of the wind within the Arctic Circle should come out with any degree of certainty from but a single year of observation, or even from several years; and before we can arrive at their true characteristics, we must combine results at different stations as well as in different years.

Rotation of the Wind.—For the purpose of ascertaining the law of the rotation of the wind, the observations were examined in reference to the number of times the wind arrived at each of the eight principal directions, the motion each time not being less than 45° ; and also in reference to the sum total of angular motion, in a direct and retrograde sense. The direction in which the hands of a watch (face up) turn, and which corresponds to the direction of the rotation of the wind, according to Dove, has been assumed as direct, and is indicated by a + sign; the opposite direction is indicated by a — sign.

The following table exhibits the number of changes of the wind, or the number of times it arrived at any one of the principal directions during a given period, and also the amount it shifted, or its angular motion expressed in units of 45° . In making out these numbers for each wind, not only the four-hourly series of observations, but also the intermediate observations in certain months were used. After each calm the counting was commenced anew, and also in cases where the wind shifted suddenly 180° .



HAFFIN BAY: MEAN LAT. 72° 5' N.; MEAN LONG. 65° 8' W.																			
Changes to	AUTUMN, 1857.				WINTER, 1857-8.				SPRING, 1858.				SUMMER, 1858.				YEAR, 1857-8.		
	Direction.		Amount.		Direction.		Amount.		Direction.		Amount.		Direction.		Amount.		Direction.	Amount.	
N.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
N. E.	3	1	5	2	8	3	10	5	5	4	7	12	5	4	8	8	21	35	
E.	6	11	11	20	11	3	24	13	5	5	25	11	9	9	19	22	31	28	
S. E.	11	11	30	19	0	1	9	2	6	6	17	11	3	6	5	8	30	24	
S.	12	7	20	12	2	5	4	16	13	3	42	5	12	6	30	25	39	21	
S. W.	6	6	12	11	3	4	10	9	2	6	4	10	2	4	9	9	13	30	
W.	7	6	17	15	5	4	15	13	18	5	31	16	5	14	9	28	27	22	
N. W.	3	17	11	35	1	15	1	42	1	4	1	8	9	3	10	17	14	39	
N. W.	17	7	24	19	8	8	15	17	6	10	25	26	6	10	14	19	27	35	
Sum	65	66	130	123	38	45	97	117	46	43	113	99	51	56	104	126	292	284	
Excess	...	1	...	3	...	1	...	20	5	...	54	5	...	32	...	6	...

From the above it appears that the direction of the wind is shifting in spring only direct, in the other seasons it is retrograde; the total amount of angular motion, however, is balanced (within 45°) in the whole year.

PORT KENNEDY: LAT. 72° 0' N.; LONG. 94° 2' W.																			
Changes to	AUTUMN, 1858.				WINTER, 1858-9.				SPRING, 1859.				SUMMER, 1859.				YEAR, 1858-9.		
	Direction.		Amount.		Direction.		Amount.		Direction.		Amount.		Direction.		Amount.		Direction.	Amount.	
N.	+	2	1	2	5	+	1	0	1	+	1	1	3	+	1	4	+	7	3
N. E.	10	4	24	15	3	1	6	2	4	2	11	5	24	8	28	12	45	25	5
E.	3	0	8	0	1	0	5	0	7	0	7	2	11	5	16	2	27	5	1
S. E.	2	4	4	11	0	1	0	2	1	0	2	0	3	2	11	2	6	17	1
S.	1	1	3	3	0	0	0	0	0	0	0	1	3	1	9	2	4	12	1
S. W.	6	9	0	17	0	5	9	0	2	0	4	0	6	0	20	6	22	0	56
W.	5	6	14	8	1	14	3	14	1	9	1	15	0	13	0	16	7	41	18
N. W.	9	12	17	28	22	2	28	4	7	6	15	12	8	16	25	50	28	68	73
Sum	52	36	72	65	28	23	39	31	16	20	31	57	57	40	67	69	116	119	262
Excess	...	4	...	13	5	...	6	...	1	...	6	...	3	...	22	...	3	...	33

As might have been expected from the peculiar situation of Port Kennedy, and the results as given on Figs. 2 and 3, the rotation of the wind seems to be greatly affected in this locality; the resulting direction is retrograde, and the amount equals four circumferences.

The following table contains, for comparison, the results of a similar investigation of the rotation of the winds at Van Rensselaer Harbor, from Dr. Kane's observations in 1853, '54, '55. Seventeen months of observations (hourly) were discussed, and the results, by the same months in different years, were united into one mean: the results for September, October, November, December, and January, have double weight, for this reason, when compared with the remaining months.

¹ These results are here published for the first time.

VAN RENSSELAER HARBOR: LAT. 78° 6' N.; LONG. 70° 9' W.												
Changes to	Autumn, 1853-4.		Winter, 1855, '4, '5.		Spring, 1854.		Summer, 1854.		Year, 1855, '4, '5.		Direction.	Amount.
	Direction.	Amount.	Direction.	Amount.	Direction.	Amount.	Direction.	Amount.	Direction.	Amount.		
N.	10	1	12	2	1	1	11	5	13	8	11	36
N. E.	2	1	3	3	2	0	4	0	6	0	4	10
E.	1	6	3	11	1	10	2	21	0	3	2	49
S. E.	3	18	4	27	10	17	12	33	2	16	5	27
S.	14	18	10	23	16	20	24	28	15	10	12	59
S. W.	20	2	27	4	29	6	43	7	12	6	17	27
W.	6	4	11	8	11	1	2	2	2	2	25	45
N. W.	4	9	6	13	4	3	6	5	6	18	5	23
Sum	63	59	88	89	74	64	120	112	44	70	82	330
Excess	1	...	3	10	...	6	...	1	...	12	...	7

The result is in favor of the direct motion of not quite a circumference. The result deduced for Baffin Bay agrees with this within the limit of uncertainty of the final value itself, and both indicate that the law of rotation probably does not hold good for these high latitudes.

Occurrence and Duration of Storms.—The following table contains the date, duration, and direction (true), of all storms experienced between the dates of the record. In each case the intensity rises to 8 (of the scale) or beyond it, and there are at least two consecutive entries of this or a higher number; in other words, gusts of wind blowing for less than three hours are not noted.

Date.	Duration.	Direction and changes.
1857, Aug. 30, 31,	12 ^h	E. S. E. to S. S. E. and S. E.
Oct. 14,	12	E. N. E. to E. S. E.
" 22,	14	N. W. to W.
" 27, 28,	8	N. W.
Nov. 6, 7,	12	N. W.
" 17,	16	S. to S. W., S. E., and S. S. E.
" 21, 22, 23,	36	N. E. to S. E., S. S. W., and S. S. W.
Dec. 5, 6,	12	W. to N. W.
" 13,	18	N. W. to W. N. W.
1858, Jan. 7,	4	N. W.
" 21,	8	N. N. W.
" 23,	8	N. N. W. to W. N. W.
Feb. 1,	6	N. N. W.
" 9,	24	N. W. to N. N. W. and N. W.
" 15,	4	N.
" 24,	32	N. W. to N. N. W. and N. W.
" 28,	6	S. E.
* March 2, 4,	14	N. E. to S. S. W., S., and S. W.
" 22, 23,	8	S. E.
" 25, 26, 27,	46	N. to N. W. and N. N. W.
April 3, 4, 5,	54	N. to N. W.
" 8,	8	N. W.
" 16, 17, 18,	59	N.
* May 4,	36	S. S. E. to S., N. N. W. and N. W.
July 13,	12	N. E.
Aug. 8,	28	E. S. E. to E.

* Indicates storms in which the direction of the wind is completely reversed; they belong to the rotary storms or cyclones. Two of these turn from the N. E. to the S. W., and the third from the S. E. to the N. W.

In the year 1857-8 (Baffin Bay), there were 25 storms of an average duration of 19 hours, and from the prevailing quarters, almost to the exclusion of all others, from the N. W. and S. E. (true); at Van Besselaer Harbor, the prevailing storm quarters were S. W. and S. E. (true), and the average duration was 7 hours; 13 storms were recorded during 17 months.

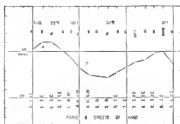
STORMS RECORDED AT FORT KENNEDY IN 1858-59.

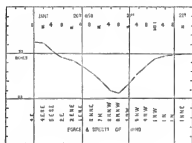
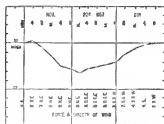
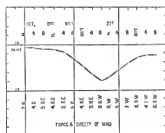
Date.	Duration.	Direction and changes.
1858, Sept. 4,	8 ^h .	W.
Oct. 3,	8	N. E.
" 16, 17,	24	W. N. W. to N. W.
" 25, 26, 27,	48	N. E. to N. N. E., N. N. W., and N. W.
Nov. 2, 3,	16	N. W. to N. N. W.
" 4,	20	W. N. W.
" 5,	4	N. W.
" 14,	4	N. W.
" 28,	54	N. N. E. to N. N. W. and N. E.
Dec. 4,	6	N. W.
" 26,	4	N. W.
" 27,	4	N. W.
1859, Jan. 8,	4	N. W.
" 24, 25,	10	N. W.
Feb. 14,	4	W. N. W.
Feb. 28, and March 1,	28	W. N. W.
March 11,	26	N. W. to W. N. W. and N. W.
" 17,	4	N. W.
April 23,	12	N. E.
April 30, and May 1,	20	W.
June 1, 2,	28	N. N. W. to N. W.
July 11,	4	N. E.

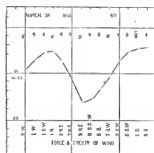
There were 22 storms in the second year, almost all from the N. W., with a few from the N. E., but not a single one from either S. W. or S. E.

As in Baffin Bay, storms are more frequent in the winter and autumn than in summer.

Five of the storms were accompanied by sudden falls of the barometer; they are the more remarkable ones, and have been illustrated by diagrams, showing the hour, direction, and force of wind, and reading of the aneroid barometer. Of these five, the storms of January 21, and March 3, 4, 1858, are perhaps the most interesting; in each case the barometer fell over one inch. During the storm of May 4, 1858, the barometer was not much affected.







The relation of the different winds to the atmospheric temperatures has already been investigated in the preceding paper; other relations, as those with the atmospheric pressure, will be given on subsequent pages.

PART III.

ATMOSPHERIC PRESSURE.

RECORD AND REDUCTION OF THE OBSERVATIONS FOR ATMOSPHERIC PRESSURE.

INTRODUCTORY REMARKS.

THE observing hours are the same as those for the other meteorological observations, that is, in part at equal intervals of two hours, and in part at intervals of four hours. There are two records, one of the aneroid readings, the other of the readings of the mercurial barometer.

The series of observations by the aneroid is continued throughout the cruise; the mercurial barometer was used only between September 20, 1857, and April 16, 1858. The readings in the month of July and August, 1857, and of September, 1859, are given in the record, but are not further introduced in the discussion, since the ship was then rapidly changing her position, not permitting a combination of the daily observations.

The mercurial marine barometer, Adie No. 208, was compared with a standard instrument at Kew both at departure and after return. The comparisons for index correction are as follows (communicated in a letter from Captain McClintock, dated London, December 12th, 1860):—

CORRECTIONS TO BE APPLIED TO BAROMETER BY ADIE NO. 208 (OR NO. 407, PRIVATE MARK OF THE MAKERS.)

BEFORE EMERSSON IN THE FOX.		SUBSEQUENT TO ITS RETURN.	
At inches.	Correction.	At inches.	Correction.
30.5	+0.005	30.5	+0.008
30.0	+0.006	30.0	+0.008
29.5	+0.007	29.5	+0.007
29.0	+0.007	29.0	+0.006
28.5	+0.007	28.5	+0.005
28.0	+0.008	28.0	+0.005

This mercurial barometer had been used by Professor Piazzi Smyth at Teneriffe, and is highly thought of by Admiral Fitzroy, in whose office it is now in use.

It is specially stated in the reduction whenever the above correction was applied. Comparisons of the readings of the mercurial and aneroid barometers will be found in the discussion.

The cistern of the mercurial barometer was four feet above the level of the sea (in reference to the position of the aneroid, no statement is given). The barometrie

readings recorded give the combined pressure of the dry air and aqueous vapor; the latter, however, is very small: no hygrometric observations were found recorded.

The following tables commence with the aneroid readings, and conclude with the readings of the mercurial barometer and its corresponding temperature. A few occasional omissions in the record were supplied by interpolation; such figures are distinguished by being placed between brackets. The mean position of the "Fox" is given for each month (the daily position is already given in the preceding temperature paper).

OF THE OBSERVATIONS FOR ATMOSPHERIC PRESSURE. 81

RECORD OF THE OBSERVATIONS OF THE ATMOSPHERIC PRESSURE MADE ON BOARD THE YACHT "FOX,"
UNDER COMMAND OF F. L. MCCLINTOCK, R. N., IN THE ARCTIC SEAS, IN 1857, '58, '59.

READINGS OF AVERAGED BAROMETER 17701 ON BOARD THE YACHT FOX. July, 1857. 29 inches +. Mean Lat. 62° 0 N., Long. 39° 1 W. of Greenwich.							
DAY.	4h.	8h.	Noon.	4h.	8h.	Midn.	Mean.
1	---	---	---	---	---	---	Inches.
2	(1.50)	1.50	1.50	1.15	.95	(.92)	1.25
3	(.85)	.85	(.87)	(.89)	.91	(.91)	0.88
4	(.91)	.91	(.94)	(.98)	1.01	(1.00)	0.99
5	(1.05)	1.11	(1.11)	(1.12)	1.12	(1.12)	1.11
6	(1.12)	1.12	1.12	1.17	1.19	1.20	1.18
7	1.20	1.22	1.23	1.22	1.22	1.22	1.22
8	1.18	1.14	1.12	1.08	1.02	.96	1.09
9	.92	.90	.86	.85	.83	.80	0.86
10	.72	.66	.50	.32	.32	.33	0.59
11	.64	.46	.44	.40	.40	.44	0.44
12	.48	.50	.54	.61	.70	.78	0.60
13	.62	.85	.92	.94	.96	.98	0.91
14	.84	.90	.92	.89	.90	.92	0.93
15	.90	.92	.94	.98	.97	.94	0.94
16	.90	.89	.85	.82	.89	.92	0.88
17	.84	.80	.88	.87	.98	.97	0.77
18	.92	.90	.94	.92	.82	.84	0.86
19	.80	(.79)	(.79)	(.74)	(.72)	.70	0.75
20	.74	.74	.74	.74	.74	.80	0.75
21	.82	.82	.84	.82	.85	.88	0.84
22	.86	.82	.80	.82	.84	.84	0.83
23	.86	.86	.84	.85	.84	.84	0.88
24	.84	.76	.73	.79	.80	.80	0.80
25	.86	(.85)	.81	.80	.89	.89	0.89
26	.70	.60	.54	.60	.56	.54	0.59
27	.54	.50	.45	.50	.50	.46	0.47
28	.52	.58	.60	.62	.60	.64	0.59
29	.68	.65	.65	.68	.72	.69	0.69
30	.70	.68	.66	.63	.64	.66	0.66
31	.72	.80	.84	.80	.92	.94	0.85
Mean	29.849	29.847	29.841	29.834	29.834	29.844	29.842
August, 1857. 29 inches +. Mean Lat. 74° 0 N., Long. 59° 8 W.							
DAY.	4h.	8h.	Noon.	4h.	8h.	Midn.	Mean.
1	.94	.99	.98	.96	.94	.94	0.99
2	.90	.92	.90	.96	.99	.96	0.94
3	.99	.98	(.94)	(.90)	(.86)	(.82)	0.91
4	.78	.74	.79	.72	.84	.93	0.79
5	1.02	1.12	1.15	1.24	1.24	1.23	1.17
6	1.19	1.06	1.00	.90	.86	.86	1.01
7	.99	1.06	1.10	1.16	1.18	1.15	1.10
8	1.18	1.12	1.02	.94	.89	.80	0.99
9	.78	.78	.91	.88	.90	.90	0.83
10	.92	.92	.94	1.00	1.06	1.04	0.98
11	1.10	1.00	.97	.94	.92	.89	0.98
12	.88	.87	.89	.92	.85	.88	0.91
13	1.00	1.04	1.06	1.02	1.02	1.02	1.03
14	.96	.90	.91	.92	.92	.91	0.91
15	.60	.81	.80	(.73)	(.62)	(.60)	0.74
16	.54	.43	.45	.50	.52	.52	0.49
17	.48	.49	.48	.51	.55	.60	0.52
18	.64	.68	.72	.76	.78	.80	0.73
19	.82	.83	.80	.84	.83	.96	0.81
20	.98	1.00	1.02	1.06	1.06	1.06	1.03
21	1.06	1.04	1.03	1.02	1.09	.98	1.02
22	.86	.86	.84	.86	.84	.84	0.88
23	.92	.92	.94	.90	.84	.84	0.89
24	.74	.71	.91	.86	.84	.84	0.82
25	.56	.61	.62	.91	.62	.84	0.89
26	.91	.84	.68	.68	.67	.62	0.91
27	.62	.65	.65	.62	.62	.96	0.64
28	.76	.92	.92	1.00	1.04	1.10	0.94
29	1.06	1.20	1.20	1.06	.90	.89	1.03
30	.80	.85	.84	.84	.66	.76	0.77
31	.86	.97	.89	.78	.60	.44	0.78
Mean	29.850	29.860	29.858	29.860	29.852	29.842	29.854

READINGS OF ANEROID BAROMETER 17701 ON BOARD THE YACHT FOX.
September, 1857. 29 Inches +. Mean Lat. 75° 3 N., Long. 65° 0 W.

DAT.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Noon.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Mean.	
1	(.641)	.43	(.643)	.44	(.43)	.42	(.40)	.37	(.41)	.46	(.54)	.43	0.44
2	(.665)	.70	(.672)	.75	(.78)	.81	(.82)	.84	(.83)	.83	(.83)	.84	0.78
3	(.653)	.52	(.654)	.83	(.87)	.96	(.82)	.86	(.97)	1.00	(1.02)	1.04	0.92
4	(1.05)	1.07	(1.09)	1.19	(1.11)	1.12	(1.12)	1.14	(1.14)	1.14	(1.14)	1.14	1.11
5	(1.11)	1.05	(1.07)	1.06	(1.02)	.86	(.86)	.84	(.82)	.81	(.81)	.81	0.89
6	(.952)	.84	(.955)	.97	(.98)	.96	(.95)	.94	(.959)	.94	(.977)	.90	0.80
7	(.981)	.82	(.979)	.88	(.88)	.86	(.89)	.88	(.88)	.87	(.88)	.84	0.87
8	(.949)	.82	(.959)	.72	(.75)	.74	(.71)	.68	(.70)	.72	(.716)	.74	0.68
9	(.977)	.77	(.976)	.76	(.81)	.86	(.87)	.88	(.89)	.89	(.92)	.93	0.84
10	(.954)	.76	(.975)	.74	(.73)	.72	(.70)	.68	(.709)	.72	(.75)	.85	0.75
11	(.952)	.88	(1.00)	1.02	(1.02)	1.02	(1.009)	.98	(.986)	.94	(.96)	.96	0.91
12	(1.02)	1.07	(1.10)	1.12	(1.14)	1.19	(1.17)	1.18	(1.19)	1.20	(1.22)	1.24	1.19
13	(1.20)	1.37	(1.41)	1.46	(1.51)	1.56	(1.56)	1.56	(1.51)	1.46	(1.40)	1.34	1.45
14	(1.42)	1.50	(1.48)	1.46	(1.41)	1.39	(1.39)	1.40	(1.36)	1.32	(1.29)	1.26	1.39
15	(1.19)	1.10	(1.09)	1.09	(1.12)	1.16	(1.21)	1.28	(1.32)	1.38	(1.40)	1.42	1.23
16	(1.29)	1.54	(1.35)	1.30	(1.31)	1.32	(1.31)	1.31	(1.33)	1.36	(1.36)	1.36	1.39
17	(1.36)	1.36	(1.29)	1.21	(1.18)	1.19	(1.18)	1.20	(1.21)	1.22	(1.24)	1.26	1.24
18	(1.22)	1.16	(1.12)	1.06	(1.06)	1.06	(.99)	.90	(.85)	.80	(.75)	.77	0.88
19	(.975)	.74	(.966)	.96	(.989)	.97	(1.00)	1.04	(1.05)	1.16	(1.18)	1.21	1.00
20	(1.22)	1.22	(1.25)	1.26	(1.27)	1.28	(1.23)	1.20	(1.15)	1.10	(1.04)	.98	1.16
21	(.688)	.78	(.671)	.64	(.62)	.60	(.62)	.64	(.64)	.64	(.64)	.60	0.69
22	.64	.60	.61	.62	.68	.72	.74	.60	.66	.66	.66	.60	0.74
23	.66	.80	.80	.80	.80	.80	1.00	1.06	1.06	1.14	1.18	1.22	1.07
24	1.18	1.17	1.17	1.16	1.20	1.18	1.12	1.08	1.05	.98	.92	.88	1.09
25	.79	.74	.70	.69	.74	.74	.79	.82	.85	.87	.88	.89	0.79
26	.80	.85	.84	.85	.89	.87	.84	.84	.84	.84	.84	.84	0.84
27	.82	.80	.80	.80	.84	.84	.84	.84	.84	.84	.84	.84	0.84
28	.83	.80	.80	.80	.84	.84	.84	.80	.80	.82	.84	.84	0.86
29	.94	.82	.80	.80	.82	.84	.94	.94	.83	.93	.92	.90	0.92
30	.84	.82	.78	.79	.77	.72	.70	.66	.64	.62	.56	.60	0.71
Mean	0.936	0.925	0.928	0.933	0.946	0.949	0.950	0.951	0.952	0.953	0.954	0.958	0.943

October, 1857. 29 Inches +. Mean Lat. 75° 2 N., Long. 67° 0 W.

DAT.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Noon.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Mean.	
1	.58	.57	.56	.52	.71	.74	.78	.78	.81	.84	.86	.80	0.73
2	.80	.81	.82	.84	1.00	1.02	1.02	1.07	1.06	1.09	1.10	1.11	1.01
3	1.11	1.13	1.10	1.10	1.18	1.14	1.18	1.18	1.20	1.18	1.18	1.18	1.18
4	1.14	1.12	1.10	1.06	1.08	1.09	1.04	1.04	1.06	1.06	1.06	.99	1.07
5	.85	.82	.90	.88	.88	.86	.78	.76	.74	.72	.70	.68	0.81
6	.67	.66	.68	.74	.80	.80	.81	.87	.87	.80	.80	.80	0.80
7	.88	.89	.89	.88	.91	.92	.82	.94	.88	.96	.96	.97	0.92
8	.96	.94	.95	1.00	1.02	1.04	1.04	1.04	1.08	1.09	1.10	1.12	1.03
9	1.12	1.10	1.10	1.10	1.20	1.24	1.25	1.28	1.29	1.30	1.32	1.32	1.23
10	1.27	1.25	1.20	1.18	1.18	1.12	1.19	1.12	1.12	1.12	1.14	1.14	1.18
11	1.06	1.06	1.09	1.04	1.09	1.06	1.04	1.03	1.00	1.01	.99	.94	1.03
12	.88	.84	.80	.79	.63	.80	.80	.83	.93	.84	.88	.84	0.83
13	.82	.81	.81	.80	.86	.78	.75	.74	.64	.62	.68	.64	0.73
14	.80	.80	.80	.84	.88	.80	.82	.81	.81	.81	.82	.84	0.84
15	.61	.59	.89	.59	.80	.80	.64	.70	.76	.78	.76	.74	0.60
16	.71	.71	.72	.71	.74	.78	.79	.83	.86	.80	.89	.94	0.80
17	1.06	1.10	1.30	1.44	1.42	1.08	1.06	1.05	1.04	1.06	1.06	1.06	1.06
18	1.00	1.04	1.02	1.04	1.06	1.05	1.06	1.02	.98	.86	.90	.81	1.00
19	.78	.73	.66	.68	.70	.69	.69	.74	.74	.79	.76	.78	0.72
20	.74	.74	.78	.81	.86	.85	.90	.90	.81	.94	.94	.93	0.86
21	.59	.84	.84	.84	.82	.82	.87	.81	.74	.68	.89	.91	0.82
22	.43	.84	.86	.80	.84	.86	.87	.83	.83	.60	.64	.70	0.62
23	.73	.74	.78	.77	.80	.82	.83	.83	.80	.78	.74	.74	0.78
24	.74	.76	.82	.82	.86	1.07	1.13	1.20	1.29	1.35	1.34	1.36	1.09
25	1.26	1.26	1.35	1.42	1.46	1.46	1.50	1.55	1.60	1.60	1.60	1.60	1.49
26	1.62	1.63	1.65	1.64	1.70	1.70	1.68	1.70	1.71	1.71	1.70	1.70	1.68
27	1.64	1.58	1.40	1.45	1.44	1.38	1.33	1.26	1.28	1.24	1.18	1.14	1.37
28	1.10	1.08	1.07	1.04	1.13	1.12	1.17	1.18	1.20	1.24	1.23	1.20	1.19
29	1.16	1.18	1.16	1.10	1.22	1.20	1.14	1.18	1.10	1.06	1.00	.96	1.13
30	.88	.83	.79	.76	.74	.78	.80	.83	.83	.80	.86	.86	0.84
31	.86	.82	.80	.81	.86	.88	.89	.88	.80	.82	.82	.89	0.87
Mean	0.944	0.930	0.916	0.924	0.956	0.958	0.961	0.976	0.995	0.993	0.995	0.977	0.959

OF THE OBSERVATIONS FOR ATMOSPHERIC PRESSURE. 83

READINGS OF ANEROID BAROMETER 17701 ON BOARD THE YACHT FOX. November, 1857. 29 Inches +. Mean Lat. 74° 8 N., Long. 69° 1 W.													
DAY.	2h.	4h.	6h.	8h.	10h.	Noon.	2h.	4h.	6h.	8h.	10h.	Midn't.	Mean.
1	.56	.56	.58	.58	.54	.54	.54	.54	.56	.54	.58	.59	0.92
2	.54	.54	.51	.51	.50	.50	.50	.50	.54	.54	.54	.54	0.95
3	.59	.52	.51	.51	.50	.54	.54	.54	1.01	1.04	1.08	1.06	0.92
4	1.05	1.07	1.08	1.09	1.16	1.20	1.22	1.23	1.25	1.25	1.29	1.28	1.19
5	1.25	1.24	1.25	1.24	1.28	1.51	1.32	1.34	1.36	1.37	1.56	1.54	1.29
6	1.30	1.25	1.28	1.28	1.34	1.52	1.29	1.26	1.23	1.20	1.12	1.04	1.25
7	.55	.59	.54	.52	.58	.59	.54	.55	.59	.59	.58	.58	0.92
8	.59	.56	.56	.57	1.00	1.02	1.05	1.12	1.15	1.22	1.26	1.28	1.08
9	1.28	1.29	1.25	1.26	1.24	1.19	1.15	1.10	1.05	1.04	1.03	1.04	1.14
10	1.07	1.10	1.12	1.15	1.20	1.22	1.23	1.23	1.24	1.25	1.24	1.29	1.19
11	1.17	1.09	1.03	.99	.98	.52	.52	.51	.76	.73	.74	.71	0.99
12	.71	.72	.79	.77	.83	.85	.89	.91	.82	.83	.81	.81	0.84
13	.54	.51	.74	.72	.72	.72	.69	.66	.69	.68	.67	.69	0.72
14	.69	.66	.86	.70	.79	.74	.75	.59	.81	.89	.81	.89	0.75
15	.81	.80	.80	.74	.74	.51	.69	.52	.50	.42	.40	.35	0.81
16	.30	.30	.27	.24	.24	.15	.19	.10	.64	.63	.69	.15	0.18
17	.28	.34	.40	.42	.44	.47	.50	.58	.60	.64	.64	.73	0.51
18	.79	.80	.87	.82	1.00	1.06	1.04	1.15	1.20	1.24	1.26	1.26	1.05
19	1.29	1.22	1.19	1.10	1.17	1.19	1.15	1.17	1.20	1.29	1.19	1.17	1.18
20	1.15	1.19	1.15	1.12	1.17	1.17	1.19	1.19	1.16	1.18	1.10	1.05	1.15
21	1.05	1.04	.95	.84	1.09	1.00	1.09	1.01	1.01	.97	.75	.68	0.85
22	.99	.92	.81	.65	.43	.38	.42	.45	.46	.48	.53	.67	.83
23	.44	.59	.68	.75	.83	.67	.61	.54	.59	.57	.57	.57	0.63
24	.57	.51	.90	.90	.84	.99	.68	1.09	1.06	1.12	1.10	1.05	0.99
25	1.05	.62	.74	.55	.40	.37	.26	.17	.12	.13	.14	.16	.64
26	.15	.18	.19	.12	.12	.10	.60	.42	.55	.51	.55	.57	0.18
27	.28	.30	.30	.34	.38	.39	.44	.47	.51	.55	.59	.60	0.43
28	.69	.61	.62	.62	.70	.70	.72	.72	.75	.75	.78	.84	0.70
29	.85	.85	.95	.94	1.01	1.04	1.10	1.15	1.18	1.29	1.32	1.23	1.05
30	1.25	1.22	1.34	1.36	1.39	1.32	1.33	1.39	1.39	1.59	1.60	1.41	1.52
Mean	0.557	0.642	0.840	0.835	0.869	0.861	0.954	0.675	0.888	0.890	0.905	0.887	29.846

December, 1857. 29 Inches +. Mean Lat. 74° 8 N., Long. 67° 4 W.													
DAY.	2h.	4h.	6h.	8h.	10h.	Noon.	2h.	4h.	6h.	8h.	10h.	Midn't.	Mean.
1	1.41	1.30	1.28	1.35	1.40	1.35	1.38	1.39	1.39	1.35	1.33	1.32	1.38
2	1.28	1.23	1.16	1.15	1.15	1.13	1.12	1.10	1.07	1.07	1.04	1.01	1.13
3	1.09	.85	.52	.89	.48	.90	.83	.80	.80	.77	.75	.73	0.85
4	.72	.70	.70	.69	.86	.85	.87	.68	.70	.62	.67	.64	0.68
5	.62	.60	.55	.54	.52	.47	.43	.42	.40	.35	.30	.29	0.40
6	.25	.23	.22	.21	.25	.29	.34	.35	.41	.44	.40	.55	0.34
7	.59	.62	.67	.74	.82	.85	.90	.92	.98	1.09	1.02	1.04	.85
8	1.04	1.05	1.02	1.02	1.08	1.06	1.10	1.12	1.15	1.20	1.54	1.72	1.11
9	1.22	1.23	1.25	1.24	1.30	1.36	1.32	1.30	1.30	1.30	1.28	1.28	1.27
10	1.27	1.23	1.23	1.21	1.25	1.26	1.28	1.30	1.28	1.31	1.51	1.53	1.27
11	1.34	1.32	1.32	1.33	1.38	1.36	1.36	1.37	1.34	1.31	1.34	1.15	1.32
12	1.05	.84	.76	.68	.54	.58	.65	.65	.65	.62	.64	.64	0.65
13	.38	.62	.27	.25	.58	.58	.59	.53	.54	.36	.58	.42	0.32
14	.44	.46	.46	.49	.59	.59	.50	.63	.65	.68	.66	.97	0.97
15	.68	.68	.56	.66	.70	.72	.74	.75	.78	.77	.78	.75	0.72
16	.75	.74	.74	.74	.75	.74	.78	.75	.75	.75	.77	.75	0.75
17	.77	.76	.77	.74	.79	.75	.80	.82	.82	.84	.84	.84	.84
18	.84	.84	.82	.80	.84	.89	.86	.85	.85	.85	.86	.82	.84
19	.82	.80	.75	.80	.85	.85	1.00	1.05	1.04	1.02	.95	.90	0.92
20	.86	.84	.76	.68	.74	.75	.75	.75	.76	.79	.74	.74	.85
21	.68	.69	.67	.70	.60	.62	.62	.59	.62	.62	.62	1.01	0.62
22	1.00	1.00	.86	1.04	1.04	1.04	1.02	1.04	1.01	.96	.99	.99	1.01
23	.93	.91	.86	.87	.89	.86	.90	.92	.94	.97	.99	1.01	0.92
24	1.04	1.04	1.02	1.04	1.19	1.10	1.10	1.11	1.11	1.10	1.06	1.03	1.07
25	.85	.68	.80	.79	.75	.73	.71	.70	.71	.70	.70	.68	0.76
26	.55	.68	.71	.64	.64	.64	.64	.64	.65	.61	.60	.62	0.67
27	.36	.30	.24	.20	.15	.15	.15	.12	.09	.09	.08	.09	0.17
28	.10	.10	.08	.04	.05	.04	.01	.00	.00	*.94	*.98	*.93	0.03
29	*.56	*.54	*.94	*.90	.03	.08	.15	.23	.21	.36	.42	.48	0.16
30	.91	.83	.55	.58	.63	.68	.72	.74	.79	.79	.84	.83	0.66
31	.83	.83	.85	.87	.92	.84	.87	.85	.85	.86	.83	.90	0.91
Mean	0.766	0.705	0.748	0.742	0.769	0.775	0.779	0.761	0.796	0.796	0.794	0.796	28.777

* Refers to 29 inches.

READINGS OF ANEROID BAROMETER 17701 ON BOARD THE YACHT FOX.
January, 1868. 29 inches +. Mean Lat. 73° 2' N., Long. 65° 7' W.

DAY.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Noon.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Midn't.	Mean.
1	.88	.87	.89	.84	.89	.82	.79	.78	.75	.72	.64	.80	0.79
2	.84	.82	.80	.89	.86	.84	.85	.83	.84	.81	.40	.81	0.82
3	.85	.88	.89	.12	.86	.01	.84	.83	.82	.85	.81	.82	0.85
4	.92	.92	.92	.94	.95	.99	.98	.01	.64	.11	.13	.20	0.91
5	.22	.24	.24	.26	.31	.32	.30	.29	.28	.26	.26	.23	0.27
6	.19	.19	.14	.12	.12	.12	.13	.14	.12	.12	.10	.09	0.13
7	.09	.07	.07	.09	.14	.17	.20	.22	.26	.29	.30	.31	0.19
8	.30	.28	.27	.20	.20	.26	.29	.27	.21	.26	.28	.24	0.28
9	.24	.21	.21	.23	.26	.29	.30	.31	.33	.30	.27	.27	0.29
10	.38	.38	.38	.40	.45	.48	.51	.54	.58	.60	.61	.68	0.59
11	.37	.69	.67	.71	.73	.75	.79	.82	.83	.83	.85	.88	0.76
12	.84	.82	.81	.80	.84	.84	.84	.85	.84	.83	.81	.77	0.82
13	.72	.71	.67	.68	.72	.80	.80	.80	.80	.81	.82	.81	0.84
14	1.00	1.04	1.00	1.02	1.09	1.08	1.03	1.07	1.09	1.06	1.02	1.06	1.02
15	1.18	1.23	1.08	1.05	1.09	1.01	1.00	.99	1.00	.96	.96	.96	1.03
16	.92	.80	.67	.62	.61	.79	.76	.77	.80	.83	.84	.88	0.83
17	.86	.80	.80	.80	.91	.91	.90	.90	.90	1.06	1.15	1.21	0.97
18	1.23	1.23	1.23	1.25	1.24	1.29	1.25	1.25	1.20	1.25	1.25	1.20	1.24
19	1.18	1.17	1.16	1.17	1.24	1.24	1.20	1.17	1.20	1.17	1.21	1.23	1.23
20	1.19	1.19	.99	.93	.91	.88	.79	.78	.64	.59	.49	.40	0.80
21	.27	.29	.15	.16	.25	.33	.40	.51	.45	.74	.83	.90	.65
22	.31	.84	.94	.97	1.02	1.00	.96	.93	.92	.76	.67	.56	0.88
23	.47	.40	.41	.64	.72	.80	.80	.82	.84	.91	.89	.81	0.71
24	.84	.79	.75	.67	.67	.61	.63	.46	.35	.23	.23	.25	0.53
25	.24	.24	.22	.20	.22	.19	.15	.14	.11	.06	.05	.04	0.19
26	.06	.06	.14	.17	.14	.26	.31	.32	.32	.34	.36	.36	0.29
27	.23	.23	.24	.26	.34	.39	.49	.58	.78	.88	.98	.98	0.60
28	.92	.85	.96	1.02	1.06	1.00	1.12	1.14	1.17	1.19	1.21	1.23	1.00
29	1.26	1.24	1.30	1.36	1.45	1.48	1.52	1.59	1.60	1.70	1.75	1.80	1.61
30	1.82	1.84	1.88	1.94	2.00	2.04	2.10	2.14	2.14	2.14	2.14	2.14	2.02
31	2.06	2.05	1.96	1.91	1.86	1.82	1.79	1.62	1.50	1.40	1.32	1.27	1.71
Mean	0.725	0.712	0.702	0.704	0.739	0.745	0.741	0.726	0.704	0.765	0.758	0.753	20.739

February, 1868. 29 inches +. Mean Lat. 71° 5' N., Long. 60° 9' W.

DAY.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Noon.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Midn't.	Mean.
1	1.23	1.17	1.15	1.14	1.15	1.19	1.15	1.15	1.12	1.09	1.07	1.00	1.14
2	.93	.89	.86	.84	.86	.84	.81	.81	.81	.80	.81	.80	0.84
3	.76	.76	.75	.72	.73	.72	.74	.73	.72	.72	.70	.70	0.73
4	.64	.64	.64	.68	.69	.69	.68	.71	.73	.75	.73	.70	0.70
5	.80	.79	.76	.76	.78	.75	.74	.74	.72	.70	.68	.64	0.74
6	.58	.53	.51	.48	.46	.47	.47	.47	.47	.48	.46	.51	0.48
7	.51	.53	.56	.59	.64	.68	.72	.78	.93	.93	.96	.99	0.70
8	.91	.90	.91	.93	1.00	1.03	1.05	1.08	1.11	1.11	1.11	1.12	1.02
9	1.09	1.06	1.03	1.02	1.03	1.03	.97	.92	.94	.78	.73	.68	0.93
10	.69	.53	.48	.40	.45	.42	.44	.44	.46	.56	.56	.54	0.46
11	.68	.74	.84	.92	1.04	1.12	1.20	1.23	1.23	1.10	1.02	.94	1.00
12	.91	.90	.86	1.08	1.19	1.22	1.26	1.29	1.35	1.26	1.24	1.24	1.16
13	1.54	1.34	1.41	1.60	1.45	1.66	1.50	1.52	1.50	1.48	1.48	1.44	1.44
14	1.37	1.37	1.32	1.28	1.31	1.29	1.28	1.30	1.29	1.32	1.32	1.36	1.31
15	1.22	1.23	1.21	1.20	1.20	1.20	1.20	1.16	1.14	1.14	1.12	1.08	1.17
16	1.04	1.01	.96	.88	.96	.81	.80	.87	.86	.82	.83	.82	0.86
17	.62	.80	.84	.93	.96	.85	.96	.88	.80	.80	.80	.80	0.86
18	.69	.84	.82	.79	.76	.72	.69	.62	.54	.52	.44	.38	0.69
19	.32	.25	.22	.23	.23	.28	.38	.47	.56	.64	.70	.72	0.42
20	.69	.69	.62	.66	.66	.66	.66	.66	.66	.66	.66	.66	0.66
21	.92	.56	.63	.68	.72	.77	.83	.88	.90	.94	.98	.99	0.78
22	1.02	1.02	1.04	1.06	1.10	1.10	1.06	1.05	1.06	.98	.90	.86	1.02
23	.78	.75	.72	.74	.76	.76	.77	.79	.80	.81	.80	.80	0.77
24	.78	.76	.73	.66	.66	.64	.63	.63	.62	.59	.59	.48	0.66
25	.68	.62	.62	.64	.62	.59	.64	.57	.68	.68	.64	.64	0.57
26	.64	.60	.70	.72	.83	.84	.89	.93	.95	.96	1.00	1.02	0.85
27	1.01	1.01	1.02	1.06	1.10	1.10	1.06	1.11	1.09	1.13	1.14	1.17	1.05
28	1.10	1.06	1.07	1.11	1.13	1.18	1.16	1.16	1.19	1.12	1.10	1.10	1.12
Mean	0.843	0.829	0.820	0.832	0.868	0.871	0.874	0.880	0.889	0.866	0.877	0.861	20.821

* Refers to 28 inches.

OF THE OBSERVATIONS FOR ATMOSPHERIC PRESSURE. 85

READINGS OF ANEROID BAROMETER 17701 ON BOARD THE YACHT FOX.
March, 1858. 29 inches +. Mean Lat. 69° 4 N., Long. 59° 1 W.

DAY.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Mean.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Mean.
1	1.04	1.02	.96	.84	.93	.93	.91	.80	.53	.24	.99	0.95
2	1.01	1.03	1.06	1.04	1.07	1.02	.96	.95	.96	.97	1.04	1.02
3	1.22	1.32	1.36	1.42	1.45	1.46	1.36	1.22	1.05	.83	.59	1.14
4	.42	.49	.54	.66	.83	.51	1.12	1.29	1.40	1.46	1.53	1.54
5	1.34	1.59	1.62	1.66	1.70	1.72	1.71	1.71	1.66	1.66	1.64	1.65
6	1.64	1.65	1.64	1.68	1.75	1.79	1.84	1.89	1.94	1.96	1.98	2.00
7	1.69	1.78	1.85	1.94	1.96	1.99	1.91	1.85	1.82	1.76	1.74	1.67
8	1.62	1.56	1.56	1.54	1.54	1.55	1.57	1.54	1.57	1.58	1.57	1.56
9	1.53	1.56	1.46	1.43	1.40	1.40	1.34	1.31	1.23	1.16	1.11	1.04
10	.99	.94	.86	.83	.82	.72	.58	.44	.29	.20	.05	.97
11	.92	.83	.83	.83	.83	.83	.83	.83	.83	.83	.83	.83
12	.92	.83	.84	.86	.83	.86	.83	.83	.83	.83	.83	.83
13	.46	.48	.49	.50	.54	.54	.54	.54	.54	.55	.56	.58
14	.55	.57	.56	.60	.69	.70	.73	.79	.80	.80	.84	.93
15	.85	.89	.80	.82	.88	.89	.93	.97	1.03	1.03	1.04	1.09
16	1.09	1.09	1.10	1.16	1.20	1.20	1.21	1.22	1.25	1.29	1.36	1.38
17	1.25	1.25	1.23	1.24	1.26	1.25	1.24	1.25	1.24	1.23	1.20	1.17
18	1.14	1.09	1.08	1.03	1.01	.96	.92	.89	.88	.98	.84	.92
19	.85	.78	.78	.77	.79	.80	.80	.82	.84	.88	.88	.90
20	.80	.88	.88	.84	.89	.85	.83	.79	.78	.75	.71	.68
21	.68	.68	.68	.70	.74	.72	.72	.70	.68	.66	.62	.60
22	.59	.56	.56	.54	.60	.58	.56	.56	.55	.54	.51	.48
23	.56	.52	.50	.55	.59	.59	.58	1.10	1.14	1.24	1.32	1.38
24	1.40	1.44	1.44	1.50	1.51	1.51	1.51	1.56	1.52	1.58	1.55	1.49
25	1.49	1.46	1.42	1.42	1.44	1.44	1.44	1.43	1.42	1.47	1.50	1.52
26	1.53	1.53	1.54	1.58	1.60	1.65	1.66	1.66	1.66	1.68	1.68	1.62
27	1.64	1.61	1.60	1.64	1.66	1.67	1.67	1.69	1.66	1.65	1.64	1.65
28	1.80	1.56	1.52	1.53	1.51	1.49	.48	1.47	1.48	1.48	1.47	1.50
29	1.47	1.46	1.48	1.53	1.55	1.55	1.59	1.59	1.58	1.60	1.58	1.54
30	1.50	1.44	1.38	1.37	1.35	1.31	1.29	1.26	1.26	1.28	1.28	1.29
31	1.27	1.24	1.24	1.26	1.25	1.24	1.23	1.16	1.19	1.20	1.20	1.13
Mean	1.095	1.077	1.073	1.069	1.120	1.116	1.110	1.124	1.119	1.118	1.114	1.101
												30.105

April, 1858. 29 inches +. Mean Lat. 66° 0 N., Long. 57° 1 W.

DAY.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Mean.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Mean.
1	1.20	1.19	1.20	1.22	1.22	1.25	1.25	1.26	1.26	1.23	1.22	1.23
2	1.18	1.12	1.12	1.10	1.10	1.08	1.08	1.07	1.07	1.04	1.02	1.09
3	1.02	.98	.96	.95	.98	.94	.94	.93	.91	.92	.82	.92
4	.85	.78	.92	.84	.94	.92	.85	.88	.88	.88	.84	.90
5	.78	.78	.76	.76	.76	.75	.76	.76	.79	.82	.84	.86
6	.87	.92	.97	1.09	1.18	1.20	1.20	1.20	1.25	1.33	1.35	1.37
7	1.32	1.29	1.30	1.30	1.29	1.28	1.26	1.26	1.26	1.26	1.24	1.27
8	1.14	1.14	1.11	1.09	1.16	1.24	1.32	1.43	1.56	1.64	1.72	1.74
9	1.74	1.75	1.75	1.74	1.73	1.70	1.68	1.64	1.64	1.62	1.62	1.61
10	1.54	1.52	1.50	1.54	1.54	1.54	1.54	1.55	1.56	1.56	1.57	1.56
11	1.56	1.54	1.52	1.53	1.56	1.55	1.54	1.53	1.52	1.53	1.54	1.54
12	1.52	1.57	1.72	1.79	1.86	1.84	1.87	1.88	1.88	1.88	1.84	1.81
13	1.74	1.72	1.67	1.67	1.63	1.54	1.53	1.48	1.44	1.42	1.38	1.35
14	1.39	1.28	1.20	1.18	1.18	1.15	1.12	1.10	1.08	1.06	1.00	1.07
15	1.02	.97	.93	.93	.96	.90	.86	.90	.98	.98	.95	.95
16	.90	.80	.80	.81	.80	.80	.80	.80	.80	.80	.80	.80
17	.86	.82	.80	.77	.76	.73	.69	.74	.72	.71	.68	.65
18	.68	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60
19	.70	.75	.77	.79	.80	.82	.84	.86	.89	.93	.92	.94
20	.91	.91	.93	.95	.97	.99	.99	.99	.99	.99	.99	.99
21	.80	.80	.80	.82	.82	.82	.82	.82	.82	.82	.82	.82
22	.89	.90	.90	.90	.90	.90	.90	.90	.90	.90	.90	.90
23	1.22	1.20	1.20	1.20	1.18	1.16	1.13	1.10	1.10	1.11	1.09	1.08
24	1.02	.97	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
25	.96	.93	.93	.93	.93	.93	.93	.93	.93	.93	.93	.93
26	.90	.98	1.03	1.08	1.13	1.18	1.23	1.28	1.33	1.41	1.43	1.46
27	1.46	1.46	1.50	1.54	1.57	1.60	1.63	1.66	1.69	1.69	1.69	1.66
28	1.57	1.53	1.57	1.60	1.63	1.64	1.65	1.66	1.66	1.66	1.66	1.66
29	1.62	1.60	1.60	1.60	1.57	1.55	1.45	1.38	1.35	1.34	1.31	1.28
30	1.22	1.17	1.07	.98	.96	.84	.84	.83	.84	.84	.86	1.00
Mean	1.148	1.138	1.137	1.148	1.153	1.146	1.145	1.144	1.154	1.166	1.168	1.174
												30.151

* Refer to 2^d inches.

READINGS OF ANEROID BAROMETER 17101 ON BOARD THE YACHT FOX.
May, 1958. 29 Inches +. Mean Lat. 68° 1 N., Long. 68° 1 W.

DAY.	4h.	5h.	Mean.	4h.	5h.	Mean.	Mean.
1	.93	.90	.90	1.04	1.16	1.20	1.03
2	1.16	(1.06)	.96	.79	.73	.74	0.91
3	.77	.85	.96	1.06	1.06	1.10	0.97
4	1.05	1.04	1.02	.90	.96	.94	1.00
5	.84	.85	.87	.99	1.07	1.11	0.95
6	1.11	1.14	1.09	1.11	1.16	1.13	1.12
7	1.12	1.15	1.21	1.21	1.23	1.23	1.19
8	1.10	1.17	1.22	1.24	1.25	1.22	1.21
9	1.16	1.19	1.10	1.08	1.08	1.06	1.11
10	1.10	1.06	1.11	1.13	1.13	1.18	1.12
11	1.14	1.17	1.20	1.19	1.12	1.14	1.16
12	1.13	1.19	1.24	1.28	1.50	1.59	1.33
13	1.58	1.58	1.60	1.64	1.86	1.89	1.92
14	1.64	1.66	1.70	1.68	1.68	1.68	1.67
15	1.65	1.74	1.78	1.70	1.70	1.63	1.76
16	1.64	1.58	1.51	1.50	1.58	1.54	1.64
17	1.50	1.46	1.42	1.40	1.37	1.34	1.42
18	1.34	1.40	1.30	1.35	1.34	1.30	1.36
19	1.30	1.31	1.33	1.25	1.22	1.19	1.26
20	(1.15)	(1.14)	(1.13)	(1.12)	(1.11)	(1.10)	1.18
21	1.08	1.10	1.14	1.18	1.18	1.17	1.14
22	1.18	1.24	1.29	1.26	1.23	1.14	1.23
23	1.16	1.16	1.10	1.16	1.14	1.16	1.17
24	1.20	1.20	1.20	1.25	1.22	1.22	1.24
25	1.15	1.12	1.10	1.05	1.15	1.18	1.13
26	1.24	1.31	1.34	1.36	1.40	1.36	1.34
27	1.30	1.45	1.42	1.44	1.54	1.50	1.40
28	1.25	1.35	1.20	1.10	1.09	1.08	1.16
29	.66	.68	1.00	1.00	1.00	1.01	0.96
30	1.05	1.07	1.10	1.13	1.14	1.19	1.11
31	1.15	1.19	1.20	1.19	1.14	1.12	1.16
Mean	1.204	1.223	1.229	1.225	1.220	1.222	1.222

June, 1958. 29 Inches +. Mean Lat. 74° 6 N., Long. 60° 1 W.							
DAY.	4h.	5h.	Mean.	4h.	5h.	Mean.	Mean.
1	1.08	1.08	1.09	1.05	1.06	1.05	1.07
2	.99	.93	.90	.85	.88	.89	0.90
3	.66	1.08	1.20	1.18	1.16	1.13	1.12
4	1.00	.94	.92	.62	1.03	1.16	0.99
5	1.20	1.24	1.20	1.22	1.24	1.29	1.28
6	1.21	1.26	1.26	1.26	1.25	1.26	1.25
7	1.24	1.31	1.34	1.28	1.28	1.26	1.29
8	1.28	1.20	1.24	1.20	1.16	1.14	1.23
9	1.12	1.10	1.08	1.05	1.00	.95	1.05
10	.94	.90	.90	.90	.95	.90	.92
11	.87	.96	1.02	1.04	1.06	1.08	1.03
12	1.10	1.12	1.19	1.22	1.24	1.25	1.18
13	1.23	1.31	1.19	1.16	1.15	1.12	1.19
14	1.12	1.17	1.22	1.24	1.24	1.20	1.20
15	1.16	1.22	1.19	1.18	1.25	1.23	1.21
16	1.19	1.16	1.12	1.04	1.00	.99	1.07
17	.90	.84	.96	.90	1.00	1.02	.96
18	.66	.69	1.01	.96	.67	.97	0.68
19	.94	.91	.81	.88	.97	.66	0.89
20	.84	.84	.84	.87	.86	.83	0.85
21	.80	.78	.82	.86	.81	.85	0.89
22	.91	.84	1.01	1.06	1.11	1.10	1.02
23	1.10	1.10	1.06	1.10	1.10	1.10	1.11
24	1.05	1.06	1.06	1.07	1.02	.94	1.05
25	.84	.89	.87	.86	.86	.85	0.87
26	.78	.76	.74	.68	.64	.59	0.70
27	.48	.42	.43	.42	.55	.67	0.61
28	.69	.66	.74	.76	.81	.84	0.73
29	.66	.61	1.00	1.06	1.20	1.16	1.03
30	1.20	1.26	1.29	1.29	1.21	1.12	1.23
Mean	1.005	1.015	1.009	1.022	1.039	1.023	1.025

OF THE OBSERVATIONS FOR ATMOSPHERIC PRESSURE. 87

READINGS OF ANEROID BAROMETER 17701 ON BOARD THE YACHT FOX. July, 1858. 29 Inches +. Mean Lat. 74° 4 N., Long. 76° 4 W.							
DAY.	4h.	8h.	Noon.	4h.	8h.	Midn't.	Mean.
1	1.12	1.17	1.22	1.24	1.21	1.06	1.18
2	1.11	1.09	1.12	1.19	1.20	1.18	1.16
3	1.07	1.10	1.09	1.06	1.07	1.07	1.07
4	1.06	1.11	1.14	1.12	1.13	1.13	1.12
5	1.04	1.00	.94	.82	.86	.78	.92
6	.72	.81	.96	.89	.80	.91	.85
7	.84	.84	.84	.82	.80	.80	.83
8	.75	.78	.78	.77	.77	.74	.76
9	.74	.74	.70	.64	.69	.64	.67
10	.64	.68	.69	.70	.71	.67	.68
11	.70	.69	.69	.70	.72	.70	.70
12	.68	.70	.69	.78	.76	.62	.70
13	.88	.87	.86	.62	.68	.62	.69
14	.64	.63	.68	.69	.72	.73	.68
15	.78	.74	.72	.60	.60	.66	.70
16	.69	.61	.64	.68	.73	.74	.67
17	.79	.79	.84	.89	.96	1.02	.88
18	1.04	1.22	1.24	1.24	1.27	1.20	1.22
19	1.20	1.32	1.38	1.40	1.44	1.38	1.38
20	1.42	1.44	1.44	1.43	1.48	1.45	1.44
21	1.46	1.88	1.48	1.46	1.48	1.46	1.47
22	1.44	1.47	1.46	1.46	1.45	1.42	1.46
23	1.40	1.37	1.38	1.30	1.28	1.18	1.32
24	1.14	1.29	1.12	1.10	1.04	1.00	1.10
25	.90	.67	.86	.96	.93	.90	.95
26	.86	.68	.84	.84	.84	.81	.92
27	.80	.69	.87	.81	.80	.89	.89
28	.89	.84	.84	.84	.88	.86	.86
29	.88	.83	.92	.97	.99	.90	.92
30	.80	.80	.82	.78	.78	.79	.83
31	.80	.81	.82	.86	.86	.84	.84
Mean	29.945	29.661	29.805	29.971	29.874	29.940	29.911
August, 1858. 29 Inches +. Mean Lat. 73.° 1 N., Long. 88° 5 W.							
DAY.	4h.	8h.	Noon.	4h.	8h.	Midn't.	Mean.
1	.80	.88	.90	.94	1.00	1.06	.93
2	1.07	1.11	1.13	1.15	1.17	1.19	1.14
3	1.16	1.16	1.18	1.15	1.16	1.12	1.18
4	1.14	1.14	1.14	1.16	1.18	1.18	1.18
5	1.39	1.23	1.24	1.28	1.27	1.26	1.25
6	1.28	1.26	1.24	1.24	1.25	1.20	1.24
7	1.15	1.15	1.00	.99	.90	.73	.95
8	.86	.84	.85	.88	.89	.82	.88
9	.60	.68	.76	.78	.78	.80	.73
10	.82	.82	.88	.90	.90	.88	.87
11	.82	.92	.99	.95	.95	.99	.97
12	.89	.89	.87	.87	.86	.87	.87
13	.87	.82	.84	.83	.74	.74	.82
14	.72	.70	.70	.72	.72	.74	.72
15	.74	.76	.80	.85	.88	.96	.87
16	.89	.89	1.00	1.00	.84	.78	.92
17	.74	.80	.83	.99	1.04	1.04	.96
18	.94	.90	.90	.99	.86	.84	.96
19	.86	.61	.98	.94	1.00	.90	.99
20	1.01	1.02	1.08	1.14	1.18	1.20	1.10
21	1.19	1.20	1.20	1.20	1.22	1.12	1.18
22	1.04	.94	.90	.96	.90	.86	.92
23	.87	.88	.86	.86	.80	.87	.82
24	.80	.69	.86	.60	.60	.64	.69
25	.68	.69	.76	.81	.81	.76	.75
26	.78	.84	.88	.90	.92	.86	.87
27	.86	.79	.74	.86	.88	.92	.85
28	.86	1.03	1.08	1.11	1.08	1.04	1.06
29	.98	.98	.90	1.05	1.05	1.06	1.00
30	1.07	1.18	1.13	1.14	1.14	1.10	1.12
31	1.10	1.10	1.13	1.14	1.16	1.18	1.16
Mean	29.917	29.621	29.941	29.663	29.866	29.947	29.944

READINGS OF ANEROID BAROMETER 17701 ON BOARD THE YACHT FOX.
September, 1858. 29 Inches +. Mean Lat. 72° 0 N., Long. 94° 4 W.

DAY.	4h.	8h.	Noon.	4h.	8h.	Mean.	Mean.
1	1.12	1.12	1.19	1.25	1.26	1.28	1.20
2	1.24	1.25	1.25	1.24	1.35	1.30	1.27
3	1.25	1.30	1.30	1.30	1.34	1.30	1.30
4	1.30	1.29	1.32	1.31	1.30	1.23	1.29
5	1.31	1.30	1.23	1.14	1.18	1.16	1.22
6	1.20	1.10	1.12	(1.00)	(1.00)	(0.94)	1.07
7	.88	.84	.87	.86	.92	.89	0.88
8	.80	.80	.84	.87	.94	.86	0.84
9	.87	1.02	1.10	1.14	1.15	1.18	1.09
10	1.19	1.20	1.20	1.20	1.24	1.22	1.21
11	1.20	1.19	1.20	1.20	1.24	1.24	1.21
12	1.16	1.13	1.17	1.17	1.17	1.18	1.16
13	1.12	1.12	1.16	1.17	1.15	1.23	1.16
14	1.20	1.24	1.28	1.28	1.22	1.22	1.24
15	1.20	1.25	1.28	1.29	1.34	1.37	1.30
16	1.27	1.32	1.33	1.36	1.33	1.29	1.31
17	1.25	1.28	1.23	1.28	1.23	1.19	1.24
18	1.14	1.16	1.12	1.19	1.20	1.12	1.16
19	1.10	1.16	1.18	1.20	1.18	1.09	1.16
20	1.00	1.00	1.00	.88	.94	.89	0.95
21	.72	.72	.74	.72	.78	.84	0.75
22	.88	1.00	1.04	1.03	.80	.83	0.83
23	.82	.83	.82	.84	.86	.89	0.84
24	.75	.80	.88	.88	.96	.86	0.81
25	.89	1.02	1.02	1.08	1.08	1.08	1.02
26	1.10	1.20	1.12	1.24	1.24	1.24	1.16
27	1.20	1.20	1.20	1.21	1.20	1.20	1.27
28	1.16	1.20	1.10	1.04	1.14	1.12	1.12
29	1.10	1.20	1.20	1.24	1.20	1.18	1.18
30	1.12	1.10	1.06	1.04	1.02	.98	1.05
Mean	30.004	30.105	30.110	30.118	30.127	30.107	30.105

October, 1858. 29 Inches +. Mean Lat. 72° 0 N., Long. 94° 2 W.

DAY.	4h.	8h.	Noon.	4h.	8h.	Mean.	Mean.
1	.68	.88	.88	.85	.80	.70	0.83
2	.64	.82	.72	.72	.72	.80	0.72
3	.68	.72	.74	.80	.80	.70	0.74
4	.61	.66	.82	.84	.86	1.00	0.83
5	1.10	1.22	1.20	1.28	1.42	1.46	1.31
6	1.46	1.54	1.60	1.62	1.68	1.68	1.56
7	1.64	1.68	1.70	.68	1.63	1.54	1.48
8	1.45	1.45	1.45	1.48	1.50	1.46	1.47
9	1.44	1.44	1.40	1.38	1.37	1.29	1.29
10	1.20	1.16	1.11	.78	.63	.48	0.86
11	.82	.45	.46	.41	.44	.42	0.43
12	.42	.46	.48	.47	.73	.75	0.60
13	.74	.84	.85	.86	.88	.88	0.84
14	.88	.88	1.04	1.08	1.16	1.20	1.04
15	1.18	1.24	1.20	1.11	1.08	.94	1.12
16	.82	.78	.70	.66	.66	.60	0.70
17	.16	.62	.60	.70	.73	.82	0.67
18	.82	.80	.88	.98	.92	.98	0.93
19	.70	.76	.79	.88	.80	.86	0.67
20	.88	.84	.88	.82	.84	.80	0.80
21	.60	.70	.60	.84	1.04	1.14	0.87
22	1.21	1.20	1.32	1.37	1.34	1.36	1.30
23	1.50	1.58	1.35	1.28	1.23	1.14	1.28
24	1.08	1.08	.86	.80	.79	.74	0.87
25	.72	.80	.86	1.04	1.04	1.24	0.88
26	1.20	1.23	1.40	1.38	1.37	1.36	1.38
27	1.24	1.44	1.46	1.46	1.42	1.34	1.41
28	1.54	1.54	1.52	1.18	1.22	1.16	1.21
29	1.10	1.10	1.04	1.04	1.02	1.00	1.05
30	.84	.86	.82	.98	.96	1.04	0.87
31	1.07	1.10	1.20	1.20	1.18	1.12	1.18
Mean	29.967	30.007	30.020	29.999	30.031	30.010	30.007

READINGS OF ANEROID BAROMETER 17701 ON BOARD THE YACHT FOX.
November, 1858. 29 Inches +. Mean Lat. 72° 0 N., Long. 94° 2 W.

DAT.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Noon.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Mean.	Max.
1	1.10	1.08	1.08	1.18	1.16	1.04	1.02	1.02	.96	.97	.94	.94	1.04
2	.95	.95	.95	.93	.95	1.00	1.05	1.14	1.10	1.14	1.16	1.20	1.02
3	1.24	1.26	1.22	1.26	1.24	1.24	1.24	1.24	1.40	1.40	1.36	1.30	1.32
4	1.23	1.22	1.12	1.14	1.16	1.16	1.12	1.22	1.24	1.28	1.20	1.24	1.16
5	1.12	1.16	1.16	1.18	1.22	1.22	1.14	1.16	1.16	1.18	1.18	1.18	1.17
6	1.13	1.16	1.22	1.28	1.26	1.28	1.32	1.34	1.32	1.28	1.34	1.36	1.27
7	1.29	1.28	1.02	1.34	1.36	1.38	1.42	1.46	1.48	1.48	1.50	1.50	1.46
8	1.48	1.48	1.46	1.50	1.50	1.48	1.48	1.50	1.52	1.52	1.52	1.52	1.50
9	1.48	1.48	1.48	1.50	1.50	1.50	1.56	1.60	1.60	1.62	1.60	1.60	1.56
10	1.62	1.62	1.58	1.60	1.64	1.68	1.66	1.68	1.68	1.66	1.66	1.60	1.64
11	1.57	1.52	1.58	1.58	1.52	1.50	1.48	1.48	1.48	1.46	1.46	1.44	1.38
12	1.44	1.44	1.43	1.42	1.50	1.46	1.48	1.48	1.48	1.48	1.48	1.48	1.46
13	1.44	1.40	1.38	1.42	1.38	1.35	1.32	1.32	1.34	1.18	1.15	1.11	1.21
14	1.08	1.04	1.02	1.07	1.08	1.10	1.09	1.18	1.18	1.20	1.22	1.20	1.12
15	1.24	1.24	1.24	1.22	1.24	1.24	1.20	1.36	1.44	1.40	1.50	1.52	1.37
16	1.54	1.54	1.52	1.67	1.54	1.52	1.50	1.45	1.40	1.44	1.30	1.28	1.47
17	1.20	1.14	1.10	1.18	1.16	1.16	1.22	1.22	1.20	1.20	1.18	1.16	1.14
18	1.10	1.06	1.06	1.08	1.12	1.14	1.13	1.15	1.16	1.16	1.16	1.16	1.12
19	1.17	1.17	1.17	1.20	1.18	1.16	1.16	1.16	1.16	1.16	1.14	1.14	1.17
20	1.08	1.08	1.01	1.03	1.00	1.08	.98	.99	1.00	1.02	1.04	1.08	1.03
21	1.10	1.10	1.09	1.14	1.13	1.14	1.12	1.14	1.14	1.12	1.13	1.11	1.12
22	1.12	1.12	1.10	1.15	1.16	1.22	1.24	1.26	1.28	1.30	1.34	1.23	1.23
23	1.32	1.31	1.30	1.32	1.36	1.39	1.40	1.40	1.42	1.46	1.50	1.40	1.40
24	1.50	1.50	1.45	1.65	1.60	1.63	1.64	1.68	1.68	1.66	1.65	1.64	1.62
25	1.60	1.57	1.56	1.58	1.58	1.63	1.64	1.60	1.56	1.56	1.57	1.58	1.57
26	1.38	1.56	1.56	1.60	1.56	1.56	1.54	1.53	1.52	1.44	1.40	1.40	1.52
27	1.38	1.54	1.56	1.54	1.56	1.50	1.49	1.48	1.48	1.46	.84	.81	.81
28	.86	.80	.73	.75	.74	.74	.72	.70	.68	.68	.68	.69	.72
29	.65	.65	.64	.72	.70	.74	.72	.74	.70	.60	.61	.61	.64
30	.62	.64	.80	.97	.98	1.00	1.00	1.02	1.00	1.01	.69	.60	.76
Mean	1.243	1.221	1.224	1.263	1.273	1.270	1.263	1.280	1.276	1.283	1.270	1.264	30.261

December, 1858. 29 Inches +. Mean Lat. 72° 0 N., Long. 94° 2 W.

DAT.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Noon.	2 ^h	4 ^h	6 ^h	8 ^h	10 ^h	Mean.	Max.
1	1.00	.96	1.00	1.06	1.08	1.06	1.12	1.16	1.18	1.16	1.20	1.20	1.10
2	1.20	1.16	1.17	1.20	1.20	1.18	1.18	1.16	1.10	1.10	1.04	1.00	1.14
3	.96	.94	.96	1.00	1.03	1.05	1.12	1.02	1.04	1.01	.68	.67	.68
4	.96	.94	.93	.98	.96	.96	1.00	1.01	1.04	1.06	1.08	1.10	1.00
5	1.10	1.10	1.12	1.12	1.12	1.12	1.18	1.16	1.16	1.18	1.16	1.16	1.14
6	1.16	1.12	1.11	1.16	1.16	1.15	1.12	1.10	1.08	1.06	1.00	.98	1.10
7	.94	.94	.92	.99	1.00	1.01	1.04	1.08	1.06	1.06	.94	.93	.98
8	1.02	1.00	.98	1.00	1.00	1.00	1.00	1.01	1.04	1.08	1.09	1.09	1.03
9	1.09	1.08	1.09	1.12	1.16	1.16	1.04	1.06	1.01	.86	.86	.82	.84
10	.89	.86	.88	.84	.82	.76	.74	.75	.74	.72	.70	.70	.76
11	.89	.87	.89	.74	.72	.74	.74	.76	.78	.60	.82	.85	.76
12	.84	.84	.81	.85	.80	.80	.82	.84	.84	.97	1.00	1.00	.61
13	1.02	1.04	1.06	1.16	1.20	1.22	1.22	1.26	1.28	1.26	1.26	1.26	1.16
14	1.24	1.22	1.20	1.24	1.28	1.28	1.28	1.28	1.22	1.23	1.24	1.22	1.24
15	1.20	1.20	1.16	1.20	1.22	1.20	1.16	1.16	1.18	1.20	1.20	1.19	1.19
16	1.12	1.10	1.13	1.18	1.12	1.10	1.10	1.12	1.08	1.08	1.08	1.07	1.10
17	1.05	1.04	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
18	1.06	1.06	1.08	1.14	1.14	1.10	1.10	1.12	1.10	1.10	1.06	1.06	1.10
19	1.04	1.04	.99	1.02	1.01	.99	.88	1.00	1.01	1.00	1.00	1.00	1.01
20	.98	.85	.92	.86	.90	.86	.82	.79	.72	.65	.54	.54	.61
21	.46	.45	.46	.50	.53	.56	.62	.60	.70	.76	.76	.80	.61
22	.83	.84	.87	.85	.80	1.00	1.03	1.04	1.08	1.08	1.10	1.10	.99
23	1.08	1.06	1.06	1.12	1.13	1.10	1.08	1.08	1.08	1.08	1.04	1.03	1.08
24	1.02	1.00	1.01	1.00	1.00	1.09	1.09	1.11	1.11	1.12	1.12	1.12	1.09
25	1.12	1.10	1.12	1.14	1.16	1.14	1.16	1.16	1.12	1.13	1.10	1.10	1.13
26	1.09	1.00	1.09	1.08	1.12	1.14	1.16	1.16	1.18	1.16	1.16	1.18	1.10
27	1.20	1.20	1.20	1.30	1.33	1.31	1.28	1.44	1.41	1.30	1.56	1.53	1.37
28	1.54	1.58	1.58	1.70	1.72	1.72	1.75	1.77	1.74	1.70	1.70	1.66	1.69
29	1.64	1.56	1.54	1.54	1.45	1.44	1.40	1.30	1.33	1.32	1.30	1.29	1.44
30	1.22	1.20	1.16	1.20	1.16	1.14	1.15	1.20	1.20	1.21	1.22	1.22	1.19
31	1.20	1.16	1.16	1.16	1.16	1.18	1.18	1.17	1.16	1.13	1.11	1.10	1.16
Mean	1.064	1.042	1.053	1.070	1.094	1.095	1.092	1.105	1.095	1.094	1.090	1.081	30.081

READINGS OF ANEROID BAROMETER 17701 ON BOARD THE YACHT FOX.
January, 1859. 29 inches +. Mean Lat. 72° 0 N., Long. 94° 2 W.

DAT.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Mean.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Mean.	
1	1.04	1.04	.96	.95	.92	.92	.88	.83	.80	.80	.78	.76	0.89
2	.95	.73	.74	.76	.78	.80	.84	.84	.85	.92	.90	.90	0.83
3	.80	.80	.92	.85	1.02	1.02	1.04	1.06	1.06	1.03	1.04	1.04	1.00
4	1.04	1.00	1.00	1.02	1.03	1.00	.98	1.00	1.04	1.04	1.04	1.03	1.02
5	1.06	1.06	1.06	1.16	1.24	1.28	1.34	1.38	1.44	1.44	1.44	1.46	1.28
6	1.46	1.46	1.46	1.46	1.44	1.42	1.44	1.42	1.37	1.26	1.30	1.28	1.41
7	1.24	1.24	1.24	1.24	1.22	1.22	1.20	1.16	1.20	1.23	1.17	1.14	1.30
8	1.16	1.19	1.15	1.18	1.22	1.22	1.24	1.27	1.28	1.24	1.24	1.22	1.21
9	1.12	1.06	.94	.94	.91	.88	.84	.84	.84	.88	.88	.88	0.92
10	.80	.84	.86	1.08	1.12	1.15	1.20	1.22	1.24	1.26	1.30	1.34	1.14
11	1.32	1.32	1.35	1.30	1.42	1.42	1.40	1.43	1.44	1.44	1.44	1.46	1.40
12	1.44	1.40	1.38	1.32	1.41	1.38	1.38	1.37	1.37	1.36	1.33	1.33	1.37
13	1.32	1.30	1.25	1.26	1.25	1.20	1.20	1.20	1.20	1.19	1.16	1.16	1.22
14	1.13	1.10	1.08	1.13	1.13	1.14	1.15	1.14	1.18	1.20	1.20	1.22	1.19
15	1.24	1.23	1.23	1.26	1.32	1.34	1.34	1.38	1.40	1.40	1.42	1.42	1.23
16	1.41	1.38	1.42	1.38	1.38	1.34	1.34	1.36	1.34	1.34	1.32	1.29	1.36
17	1.28	1.28	1.24	1.20	1.28	1.26	1.27	1.29	1.28	1.26	1.24	1.24	1.27
18	1.21	1.19	1.17	1.21	1.15	1.15	1.15	1.12	1.12	1.10	1.09	1.10	1.16
19	1.10	1.10	1.14	1.20	1.20	1.20	1.15	1.22	1.22	1.22	1.19	1.16	1.17
20	1.09	1.04	.98	.98	.98	.95	.92	.83	.84	.84	.86	.86	0.98
21	1.00	.98	.97	1.02	1.02	1.00	1.00	1.03	1.03	1.00	.96	.96	1.00
22	.80	.88	.88	.92	.94	.97	.98	.98	.98	.98	.98	.98	0.84
23	.80	.86	.84	.90	.94	.94	.90	.90	.90	1.05	1.02	1.04	0.85
24	1.06	1.04	1.04	1.10	1.10	1.17	1.18	1.18	1.17	1.16	1.15	1.10	1.13
25	1.14	1.19	1.16	1.20	1.22	1.24	1.22	1.26	1.30	1.30	1.30	1.34	1.24
26	1.24	1.32	1.30	1.34	1.34	1.30	1.32	1.33	1.31	1.32	1.30	1.34	1.24
27	1.26	1.26	1.24	1.21	1.26	1.32	1.32	1.36	1.36	1.34	1.26	1.26	1.26
28	1.26	1.26	1.26	1.28	1.31	1.33	1.35	1.38	1.38	1.40	1.40	1.38	1.33
29	1.41	1.42	1.40	1.46	1.46	1.44	1.43	1.44	1.42	1.40	1.40	1.40	1.42
30	1.29	1.38	1.40	1.43	1.46	1.48	1.44	1.50	1.51	1.54	1.52	1.52	1.46
31	1.50	1.50	1.50	1.50	1.56	1.59	1.59	1.52	1.52	1.52	1.54	1.52	1.53
Mean	1.172	1.158	1.148	1.180	1.197	1.190	1.192	1.205	1.207	1.200	1.201	1.200	30.188

February, 1859. 29 inches +. Mean Lat. 72° 0 N., Long. 94° 2 W.

DAT.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Mean.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Mean.	
1	1.46	1.47	1.46	1.49	1.46	1.43	1.40	1.38	1.39	1.34	1.37	1.35	1.40
2	1.23	1.20	1.18	1.20	1.20	1.18	1.17	1.13	1.08	1.05	.98	.92	1.12
3	.85	.81	.78	.80	.78	.73	.76	.68	.66	.63	.62	.60	0.72
4	.80	.60	.65	.72	.78	.84	.88	.92	.98	1.02	1.04	1.00	0.84
5	1.08	1.10	1.10	1.20	1.10	1.10	1.15	1.22	1.24	1.24	1.24	1.23	1.10
6	1.23	1.21	1.17	1.20	1.22	1.20	1.25	1.25	1.26	1.19	1.28	1.24	1.22
7	1.22	1.22	1.23	1.22	1.23	1.27	1.32	1.30	1.29	1.32	1.32	1.34	1.27
8	1.30	1.30	1.30	1.35	1.34	1.32	1.30	1.30	1.28	1.28	1.28	1.24	1.30
9	1.21	1.22	1.20	1.26	1.24	1.28	1.28	1.27	1.28	1.29	1.28	1.28	1.25
10	1.24	1.23	1.18	1.20	1.32	1.18	1.20	1.20	1.20	1.18	1.17	1.18	1.20
11	1.10	1.08	1.00	1.00	1.01	1.00	.98	.80	.76	.74	.70	.68	0.88
12	.64	.60	.56	.57	.52	.46	.46	.46	.46	.46	.46	.46	0.52
13	.45	.46	.48	.48	.49	.53	.52	.54	.55	.58	.60	.60	0.52
14	.60	.60	.62	.68	.70	.73	.76	.80	.82	.84	.86	.86	0.74
15	.90	.90	.90	.94	.98	1.00	1.04	1.04	1.00	1.02	1.06	1.05	0.99
16	1.04	1.02	1.02	1.10	1.13	1.12	1.14	1.19	1.18	1.18	1.18	1.19	1.12
17	1.19	1.19	1.21	1.25	1.26	1.26	1.29	1.30	1.31	1.32	1.34	1.35	1.27
18	1.32	1.32	1.38	1.38	1.39	1.40	1.47	1.51	1.51	1.52	1.53	1.54	1.45
19	1.32	1.46	1.46	1.52	1.51	1.50	1.52	1.50	1.50	1.47	1.46	1.44	1.48
20	1.40	1.30	1.25	1.30	1.27	1.26	1.28	1.28	1.28	1.28	1.28	1.28	1.28
21	1.25	1.25	1.24	1.28	1.38	1.38	1.39	1.40	1.43	1.44	1.45	1.44	1.34
22	1.40	1.38	1.38	1.40	1.46	1.46	1.44	1.44	1.44	1.40	1.45	1.45	1.44
23	1.44	1.44	1.44	1.52	1.54	1.55	1.58	1.58	1.58	1.58	1.56	1.57	1.54
24	1.56	1.56	1.55	1.49	1.50	1.48	1.45	1.44	1.44	1.40	1.36	1.32	1.46
25	1.27	1.24	1.20	1.22	1.23	1.24	1.23	1.23	1.24	1.26	1.26	1.25	1.24
26	1.24	1.23	1.21	1.30	1.28	1.28	1.30	1.30	1.31	1.31	1.30	1.28	1.28
27	1.23	1.18	1.10	1.12	1.10	1.06	1.04	.98	.97	.95	.92	.94	1.06
28	.82	.79	.78	.82	.83	.82	.81	.82	.84	.88	.88	.80	0.83
Mean	1.135	1.120	1.110	1.145	1.149	1.146	1.163	1.191	1.184	1.182	1.180	1.180	30.142

OF THE OBSERVATIONS FOR ATMOSPHERIC PRESSURE. 91

READINGS OF ANEROID BAROMETER 17701 ON BOARD THE YACHT FOX.

March, 1859. 29 Inches +. Mean Lat. 72° 0' N., Long. 94° 2' W.

PAT.	2 ^d	4 th	6 th	8 th	10 th	Noon.	2 ^d	4 th	6 th	8 th	10 th	Mid'n.	Mean.
1	.50	.92	.66	1.10	1.14	1.14	1.16	1.17	1.17	1.19	1.20	1.20	1.10
2	1.29	1.19	1.18	1.22	1.25	1.28	1.27	1.25	1.24	1.22	1.22	1.20	1.23
3	1.18	1.16	1.12	1.15	1.17	1.17	1.15	1.14	1.14	1.14	1.12	1.13	1.15
4	1.12	1.10	1.10	1.16	1.18	1.19	1.22	1.26	1.28	1.29	1.30	1.32	1.21
5	1.32	1.31	1.30	1.37	1.40	1.40	1.45	1.46	1.47	1.46	1.46	1.49	1.41
6	1.47	1.46	1.44	1.50	1.53	1.52	1.55	1.54	1.53	1.53	1.53	1.54	1.51
7	1.50	1.47	1.46	1.48	1.46	1.47	1.46	1.44	1.42	1.39	1.36	1.31	1.44
8	1.26	1.22	1.16	1.18	1.17	1.16	1.16	1.17	1.16	1.16	1.16	1.14	1.18
9	1.10	1.06	1.06	1.10	1.10	1.10	1.09	1.10	1.11	1.14	1.16	1.13	1.10
10	1.11	1.08	1.06	1.08	1.06	1.04	1.04	1.00	.96	.63	.60	.66	1.01
11	.62	.76	.94	.62	.89	.60	.79	.79	.79	.61	.62	.80	0.81
12	.69	.78	.60	.62	.92	.94	1.02	1.05	1.10	1.13	1.17	1.21	0.99
13	1.22	1.20	1.22	1.22	1.32	1.35	1.32	1.30	1.42	1.43	1.40	1.41	1.32
14	1.43	1.44	1.39	1.40	1.43	1.42	1.43	1.44	1.44	1.44	1.44	1.49	1.43
15	1.39	1.34	1.31	1.26	1.32	1.34	1.29	1.30	1.24	1.24	1.23	1.19	1.30
16	1.14	1.10	1.10	1.14	1.12	1.10	1.09	1.09	1.10	1.09	1.08	1.06	1.10
17	1.04	1.04	1.08	1.14	1.14	1.15	1.16	1.22	1.26	1.30	1.32	1.32	1.16
18	1.30	1.31	1.37	1.36	1.38	1.42	1.40	1.44	1.44	1.46	1.48	1.44	1.40
19	1.44	1.44	1.46	1.46	1.48	1.48	1.50	1.52	1.54	1.56	1.58	1.56	1.50
20	1.54	1.56	1.58	1.58	1.58	1.58	1.68	1.68	1.72	1.70	1.70	1.72	1.67
21	1.70	1.70	1.78	1.78	1.74	1.76	1.75	1.78	1.80	1.82	1.81	1.80	1.77
22	1.78	1.78	1.78	1.80	1.82	1.82	1.82	1.78	1.78	1.78	1.78	1.74	1.79
23	1.70	1.65	1.64	1.68	1.64	1.61	1.56	1.56	1.54	1.54	1.54	1.52	1.60
24	1.46	1.42	1.42	1.46	1.46	1.44	1.40	1.40	1.39	1.38	1.38	1.36	1.42
25	1.32	1.30	1.30	1.38	1.40	1.40	1.44	1.46	1.48	1.40	1.54	1.54	1.42
26	1.54	1.53	1.54	1.58	1.58	1.58	1.56	1.58	1.58	1.56	1.58	1.58	1.67
27	1.54	1.56	1.59	1.54	1.54	1.59	1.56	1.62	1.64	1.68	1.68	1.68	1.60
28	(1.69)	(1.70)	(1.71)	1.72	(1.70)	1.68	(1.67)	1.66	(1.68)	1.70	(1.67)	1.64	1.68
29	(1.56)	1.54	(1.66)	1.56	(1.56)	1.54	(1.56)	1.58	(1.56)	1.60	(1.60)	1.61	1.54
30	(1.60)	1.60	(1.62)	1.66	(1.66)	1.66	(1.68)	1.70	(1.70)	1.72	(1.72)	1.74	1.67
31	(1.75)	1.72	(1.75)	1.74	(1.74)	1.78	(1.75)	1.72	(1.71)	1.70	(1.67)	1.64	1.71
Mean	1.254	1.356	1.346	1.380	1.386	1.386	1.386	1.397	1.408	1.406	1.407	1.396	30.362

April, 1859. 29 Inches +. Mean Lat. 72° 0' N., Long. 94° 2' W.

DAT.	4 ^h .	6 ^h .	Noon.	4 ^h .	6 ^h .	11 ^h .	Mean.
1	1.56	1.56	1.52	1.52	1.44	1.40	1.50
2	1.27	1.28	1.23	1.19	1.16	1.16	1.22
3	1.17	1.14	1.08	1.06	.99	.94	1.06
4	.87	.62	.64	1.00	1.03	1.04	0.97
5	1.07	1.08	1.07	1.07	1.09	1.08	1.07
6	1.07	1.09	1.02	1.07	1.08	1.03	1.06
7	.68	1.02	.96	1.00	1.04	1.07	1.01
8	1.07	1.13	1.14	1.18	1.20	1.27	1.17
9	1.37	1.44	1.46	1.52	1.61	1.63	1.61
10	1.67	1.69	1.70	1.69	1.88	1.91	1.78
11	1.96	2.00	2.02	2.07	2.11	2.11	2.06
12	2.16	2.16	2.27	2.24	2.27	2.34	2.23
13	2.17	2.17	2.16	2.14	2.15	2.11	2.18
14	2.04	2.07	2.04	2.01	1.99	1.96	2.02
15	1.97	1.76	1.96	1.59	1.52	1.46	1.65
16	1.37	1.37	1.37	1.39	1.39	1.37	1.36
17	1.26	1.26	1.27	1.27	1.34	1.31	1.30
18	1.17	1.17	1.10	1.11	1.10	1.12	1.13
19	1.27	1.36	1.42	1.46	1.54	1.53	1.48
20	1.57	1.67	1.69	1.62	1.66	1.61	1.69
21	1.57	1.57	1.54	1.50	1.26	1.15	1.41
22	.67	1.07	.99	.97	.93	.48	0.99
23	1.06	1.17	1.16	1.14	1.10	1.03	1.11
24	1.07	1.09	1.16	1.17	1.23	1.16	1.16
25	1.17	1.17	1.16	1.12	1.10	1.04	1.13
26	.97	1.07	1.10	1.17	1.28	1.25	1.14
27	1.27	1.27	1.24	1.25	1.26	1.26	1.28
28	1.37	1.36	1.40	1.47	1.48	1.45	1.43
29	1.47	1.47	1.46	1.46	1.44	1.42	1.45
30	1.37	1.47	1.41	1.43	1.43	1.40	1.42
Mean	1.374 (1.353) At 4 ^h	1.401	1.396	1.396	1.403	1.351 (1.374) At 12 ^h	30.391 30.388

READINGS OF ANEROID BAROMETER 11701 ON BOARD THE YACHT FOX.
May, 1859. 29 Inches +. Mean Lat. 72° 0 N., Long. 94° 2 W.

DAY.	5h.	5h.	Noon.	4h.	5h.	11h.	Mean.
1	1.37	1.39	1.40	1.40	1.39	1.37	1.39
2	1.27	1.29	1.37	1.30	1.36	1.31	1.32
3	1.35	1.37	1.39	1.38	1.38	1.33	1.36
4	1.28	1.30	1.28	1.26	1.26	1.24	1.27
5	1.18	1.22	1.25	1.22	1.26	1.22	1.22
6	1.29	1.34	1.26	1.26	1.27	1.26	1.25
7	1.25	1.28	1.30	1.29	1.37	1.32	1.30
8	1.30	1.33	1.30	1.25	1.23	1.18	1.27
9	1.16	1.17	1.20	1.36	1.31	1.29	1.26
10	1.15	1.22	1.22	1.22	1.22	1.16	1.21
11	1.08	1.12	1.00	1.00	1.07	1.05	1.08
12	.96	.97	1.00	1.00	1.07	1.07	1.02
13	1.00	1.02	1.00	.98	1.00	.98	1.00
14	.90	.92	.95	.96	.97	.96	.95
15	.84	.87	.83	.80	.88	.87	.82
16	.81	.82	.84	.83	.83	.81	.82
17	.76	.78	.82	.82	.87	.85	.82
18	.90	.95	.90	.87	1.02	1.06	.95
19	1.07	1.09	1.16	1.19	1.24	1.21	1.17
20	1.25	1.29	1.32	1.32	1.34	1.35	1.31
21	1.28	1.28	1.26	1.22	1.22	1.22	1.25
22	1.12	1.15	1.17	1.20	1.23	1.23	1.19
23	1.30	1.33	1.36	1.39	1.31	1.32	1.29
24	1.25	1.28	1.32	1.36	1.38	1.35	1.32
25	1.24	1.29	1.30	1.30	1.28	1.28	1.29
26	1.26	1.28	1.29	1.29	1.30	1.28	1.29
27	1.19	1.19	1.20	1.25	1.25	1.27	1.24
28	1.29	1.29	1.38	1.41	1.42	1.43	1.37
29	1.40	1.42	1.47	1.49	1.54	1.56	1.45
30	1.56	1.58	1.63	1.64	1.65	1.63	1.62
31	1.65	1.65	1.72	1.70	1.70	1.70	1.69
Mean	1.182 (1.175) At 4h.	1.203	1.239	1.233	1.245	1.235 (1.231) At 12h.	30.222 30.216

June, 1859. 29 Inches +. Mean Lat. 72° 0 N., Long. 94° 2 W.

DAY.	5h.	5h.	Noon.	4h.	5h.	11h.	Mean.
1	1.69	1.69	1.70	1.68	1.67	1.55	1.64
2	1.52	1.50	1.44	1.36	1.32	1.21	1.39
3	1.15	1.15	1.23	1.27	1.32	1.33	1.24
4	1.32	1.34	1.39	1.39	1.39	1.40	1.37
5	1.44	1.46	1.51	1.55	1.56	1.58	1.52
6	1.54	1.58	1.60	1.62	1.64	1.62	1.60
7	1.84	1.86	1.86	1.82	1.82	1.45	1.83
8	1.36	1.31	1.29	1.24	1.18	1.16	1.26
9	1.09	1.11	1.13	1.16	1.23	1.22	1.16
10	1.16	1.21	1.24	1.26	1.26	1.22	1.25
11	1.19	1.16	1.20	1.26	1.22	1.22	1.21
12	1.11	1.10	1.09	1.08	1.08	1.06	1.09
13	1.01	1.00	1.02	1.03	1.01	1.02	1.01
14	.88	1.01	1.00	1.00	1.00	.84	.99
15	.85	.84	.86	.85	.86	.80	.85
16	.85	.82	.89	.89	.92	.91	.88
17	.82	.86	.86	.86	.86	.81	.85
18	.75	.72	.65	.73	.85	.62	.77
19	1.04	1.06	1.08	1.08	1.14	1.16	1.09
20	1.19	1.23	1.16	1.14	1.07	1.08	1.15
21	1.15	1.16	1.10	1.02	.99	.96	1.00
22	.99	1.02	1.03	1.06	1.06	1.06	1.03
23	1.05	1.02	1.02	1.01	.99	.99	1.01
24	1.00	1.04	1.02	1.04	.98	.92	1.00
25	.86	.86	.86	.86	.84	.84	.86
26	.75	.78	.81	.79	.77	.77	.78
27	.74	.78	.89	.85	.83	.84	.81
28	.88	.61	.89	1.04	1.11	1.10	1.00
29	1.11	1.11	1.00	1.04	1.08	1.07	1.07
30	1.14	1.15	1.15	1.12	1.09	1.06	1.12
Mean	1.114 (1.111) At 4h.	1.122	1.127	1.121	1.130	1.114 (1.110) At 12h.	30.123 30.122

OF THE OBSERVATIONS FOR ATMOSPHERIC PRESSURE. 93

 READINGS OF ANEROID BAROMETER 11701 ON BOARD THE YACHT FOX.
 July, 1850. 29 Inches +. Mean Lat. 12° 0' N., Long. 94° 2' W.

DAY.	3h.	4h.	5h.	6h.	7h.	8h.	Noon.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	Midst.	Mean.
1	(1.00)	(0.95)	.95	(.92)	.90	(.89)	.91	(.93)	.99	(.98)	1.00	(.96)	.97	(.97)	.95	
2	(.98)	(.95)	.95	(.92)	.90	(.89)	.94	(.97)	1.01	(1.03)	1.04	(1.04)	1.02	(1.00)	.99	
3	(1.07)	(1.00)	1.10	(1.11)	1.12	(1.10)	1.07	(1.05)	.94	(1.02)	1.00	(1.00)	.99	(.99)	1.03	
4	(.98)	(.90)	.98	(.98)	.89	(.97)	.95	(.94)	.93	(.92)	.90	(.88)	.89	(.85)	.94	
5	(.83)	(.80)	.79	(.79)	.78	(.77)	.79	.74	.74	.74	.74	.74	(.73)	.72	.76	
6	.70	.70	---	.70	.74	.80	.80	.82	.84	.84	.92	.96	---	1.00	1.02	
7	.85	.99	---	1.01	1.02	1.04	1.04	1.04	1.02	.99	.99	.96	---	.97	1.00	
8	.79	.85	---	.87	.90	.79	.76	.74	.72	.69	.67	.62	---	.66	.69	
9	.52	.47	---	.43	.42	.39	.38	.34	.32	.29	.23	.22	---	.20	.35	
10	.29	.26	---	.25	.24	.20	.20	*.28	*.28	*.27	*.28	.26	---	.22	.04	
11	.04	.09	---	.14	.24	.30	.36	.43	.48	.56	.62	.64	---	.66	.39	
12	.68	.70	---	.72	.73	.82	.83	.85	.88	.89	.90	.94	---	.76	.81	
13	.74	---	---	.72	.70	.70	.68	.64	.60	.56	.54	.45	---	.48	.83	
14	.50	.53	---	.50	.55	.58	.74	.77	.77	.77	.76	.73	---	.72	.68	
15	.72	.71	---	.70	.70	.70	.70	.78	.78	.74	.72	.72	---	.72	.72	
16	.74	.76	---	.80	.82	.84	.82	.82	.80	.78	.78	.79	---	.76	.79	
17	.73	.79	---	.80	.82	.80	.80	.82	.79	.79	.74	.71	---	.69	.78	
18	.69	.67	---	.68	.68	.67	.66	.68	.70	.75	.74	.75	---	.74	.70	
19	.75	---	---	.78	.80	.88	.84	1.02	1.06	1.04	1.03	1.02	---	1.02	.83	
20	1.02	1.04	---	1.06	1.12	1.14	1.16	1.22	1.17	1.19	1.14	1.12	---	1.11	1.12	
21	1.10	1.13	---	1.14	1.22	1.19	1.20	1.34	1.36	1.34	1.34	1.34	---	1.34	1.26	
22	1.36	---	---	1.39	1.46	1.50	1.52	1.58	1.60	1.46	1.53	1.44	---	1.43	1.46	
23	1.42	1.44	---	1.43	1.48	1.48	1.49	1.49	1.40	1.44	1.39	1.35	---	1.36	1.43	
24	1.36	1.36	---	1.36	1.42	1.45	1.44	1.44	1.42	1.36	1.34	1.31	---	1.30	1.38	
25	1.26	1.28	---	1.25	1.26	1.26	1.25	1.20	1.29	1.29	1.18	1.14	---	1.14	1.23	
26	1.12	1.11	---	1.12	1.10	1.12	1.12	1.18	1.14	1.06	1.06	.98	---	.94	.69	
27	.92	.98	---	.99	.98	.97	.94	.89	.81	.84	.81	.81	---	.81	.92	
28	.81	.84	---	.95	1.04	1.08	1.12	1.14	1.12	1.08	1.05	1.00	---	1.00	1.04	
29	1.00	1.01	---	1.03	1.06	1.10	1.15	1.13	1.13	1.12	1.12	1.11	---	1.08	1.09	
30	1.06	1.10	---	1.14	1.19	1.20	1.20	1.18	1.20	1.16	1.18	1.17	---	1.15	1.16	
31	1.12	1.12	---	1.14	1.19	1.17	1.15	1.12	1.12	1.10	1.08	1.01	---	1.00	1.11	
Mean	0.879	0.885	---	0.887	0.912	0.924	0.932	0.946	0.940	0.930	0.924	0.905	---	0.892	0.913	

August, 1850. 29 Inches +. Mean Lat. 71° 9' N., Long. 19° 8' W.

DAY.	4h.	8h.	Noon.	4h.	8h.	Midn't.	Mean.
1	.89	1.06	1.08	1.08	1.10	1.02	1.06
2	1.02	1.02	1.00	.95	.94	.90	0.95
3	.84	.91	.82	.86	.89	.79	0.89
4	.72	.84	.80	.82	.80	.69	0.80
5	.89	.96	.96	.92	.91	.84	0.93
6	.84	.89	.94	.90	.84	.78	0.89
7	.74	.74	.72	.79	.80	.81	0.77
8	.82	.86	.84	.82	.81	.79	0.83
9	.74	.79	.84	.84	.85	.84	0.87
10	.97	1.00	1.08	1.12	1.06	1.06	1.05
11	1.09	1.12	1.11	1.19	1.06	.98	1.08
12	.86	.94	.93	.93	.94	.90	0.93
13	.92	.93	.94	.94	.93	.87	0.92
14	.80	.74	.69	.68	.68	.68	0.71
15	.69	.76	.87	1.02	1.10	1.12	0.93
16	1.16	1.13	1.12	1.12	1.07	1.02	1.10
17	.96	.92	.89	.84	.79	.64	0.84
18	.79	.86	.84	.64	.64	.82	0.65
19	.89	.86	.81	.82	.89	.61	0.61
20	.89	.89	.84	.82	.60	.64	0.61
21	.81	.64	.60	.79	.67	.64	0.65
22	.81	.58	.54	.59	.60	.70	0.60
23	.82	.59	1.12	1.21	1.28	1.30	1.12
24	1.24	1.22	1.20	1.16	1.10	1.04	1.19
25	1.05	1.07	1.10	1.13	1.13	1.13	1.11
26	1.12	1.14	1.15	1.19	1.12	1.10	1.13
27	1.10	1.10	1.12	1.12	1.18	1.20	1.14
28	1.21	1.30	1.36	1.35	1.40	1.49	1.32
29	1.44	1.47	1.46	1.45	1.40	1.40	1.45
30	1.44	1.38	1.27	1.22	1.22	1.22	1.28
31	1.22	1.23	1.23	1.24	1.23	1.24	1.23
Mean	0.956	0.940	0.951	0.963	0.962	0.944	0.959

* Refers to 28 inches.

READINGS OF ANEROID BAROMETER 17701 ON BOARD THE YACHT FOX. September, 1859. 29 Inches +. Mead Lat. 58° 9 N., Long. 49° 9 W.						
DAY.	4 ^h .	5 ^h .	Noon.	4 ^h .	5 ^h .	Midnight.
1	1.24	1.26	1.27	1.26	1.23	1.29
2	1.16	1.16	1.20	1.20	1.20	1.16
3	1.14	1.11	1.08	1.04	.88	.69
4	.80	.79	.77	.80	.81	.80
5	.78	.74	.68	.68	.68	.73
6	.70	.68	.65	.65	.67	.69
7	.78	.82	.85	.85	.85	.80
8	.89	.88	.88	.85	.85	.84
9	.75	.80	.82	.80	.84	.82
10	.81	.82	.80	.82	.84	.82
11	.80	.81	.80	.81	.84	.80
12	.88	.85	.78	.84	.84	.84
13	.83	.82	.81	.88	.82	.84
14	.82	.80	.82	.83	.82	.80
15	.89	.82	.86	1.00	1.01	1.03
16	1.05	1.15	1.19	1.24	1.30	1.30
17	1.30	1.32	1.32	1.30	1.30	1.30
18	1.25	1.26	1.23	1.20	1.18	1.18

Additional Readings of the Marine Mercurial Barometer, between September, 1857, and April, 1858.

A description of the Marine Barometer adopted by Her Majesty's government, on the recommendation of the Kew Observatory Committee of the British Association for the Advancement of Science, will be found in the appendix to the fourth number of meteorological papers, published by authority of the Board of Trade. London, 1860.

READINGS OF THE MARINE MERCURIAL BAROMETER, ADIE No. 208, ON BOARD THE YACHT FOX.															
Height of cistern above the level of the sea, 4 feet.															
September, 1857. 29 Inches +. Mead Lat. 75° 2 N., Long. 65° 3 W.															
DAY.	4 ^h .		5 ^h .		Noon.		4 ^h .		5 ^h .		Midnight.		Mean.	Mean.	
	Inch.	Th.	Inch.	Th.	Inch.	Th.	Inch.	Th.	Inch.	Th.	Inch.	Th.			
20	(1.033)	(55)	1.003	55	1.106	56	1.048	59	.931	59	.757	62	1.000	58.2	.520
21	(.640)	(62)	.500	62	.453	61	.476	59	.542	62	.540	66	.527	62.0	.571
22	(.421)	(46)	.441	45	.355	52	.473	54	.664	57	.738	63	.581	52.7	.616
23	(.713)	(46)	.772	45	.854	53	.801	55	.867	58	1.049	61	.875	54.0	.532
24	(1.042)	(60)	1.052	60	1.006	56	.927	54	.839	55	.740	59	.831	47.3	.854
25	(.541)	(30)	.531	38	.531	47	.661	49	.702	62	.749	69	.628	46.8	.573
26	(.720)	(46)	.760	46	.728	52	.710	50	.690	51	.640	57	.711	51.0	.661
27	(.640)	(57)	.620	57	.676	51	.696	53	.696	55	.696	56	.671	50.3	.603
28	(.628)	(52)	.628	52	.651	52	.728	55	.702	59	.791	61	.696	55.3	.626
29	(.740)	(41)	.710	46	.785	54	.790	53	.799	56	.765	58	.765	51.8	.701
30	(.666)	(49)	.636	49	.568	47	.513	49	.476	52	.436	51	.552	49.7	.496
Mean	.713	56.6	.700	50.5	.723	53.0	.729	53.8	.733	57.0	.734	60.1	.722	54.2	
At 32°	29.556		29.643		29.697		29.672		29.658		29.640		29.654		29.684

The column for 4^h A. M. was obtained by interpolation, the difference in the aneroid readings of 4^h and 5^h was applied to the reading of the marine barometer at 5^h to get the value for 4^h.

The reduction to 32° was effected by means of Table XVII., C., of Guyot's Meteorological Tables (Edition of 1858).

The reading for 4 A. M., between October 1 and 20, being wanting, they were supplied by means of differences of the aneroid readings, as stated above.

READINGS OF THE MARINE MERCURIAL BAROMETER, ARIE No. 208, ON BOARD THE YACHT FOX.
October, 1857. 29 Inches +. Mean Lat. 75° 2 N., Long. 67° 9 W.

DAY.	4h.		5h.		Noon.		4h.		5h.		Midnight.		Mean.		At 30°.
	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	
1	29.422	(45)	29.472	46	29.505	50	29.498	49	29.476	54	29.440	54	29.460	49	29.338
2	29.476	(46)	29.488	46	29.500	50	29.520	49	29.477	53	29.480	54	29.479	49	29.325
3	29.480	(47)	29.500	51	29.502	47	29.528	52	29.503	56	29.513	54	29.511	52	29.348
4	29.504	(44)	29.514	44	29.505	49	29.506	49	29.499	52	29.511	52	29.500	48	29.348
5	29.509	(45)	29.520	45	29.516	50	29.521	48	29.513	52	29.516	52	29.517	49	29.348
6	29.514	(47)	29.524	47	29.520	49	29.503	49	29.498	54	29.527	51	29.524	50	29.397
7	29.509	(47)	29.507	47	29.514	45	29.498	44	29.513	49	29.518	54	29.524	47	29.315
8	29.512	(49)	29.522	49	29.510	50	29.501	49	29.513	51	29.510	49	29.510	48	29.316
9	29.508	(48)	29.502	48	29.506	50	29.518	50	29.511	53	29.511	50	29.515	46	29.323
10	29.510	(47)	29.508	47	29.501	45	29.509	42	29.507	49	29.509	45	29.501	46	29.334
11	29.502	(49)	29.512	49	29.502	44	29.500	44	29.506	49	29.505	51	29.515	44	29.304
12	29.515	(53)	29.518	53	29.518	49	29.500	45	29.504	50	29.507	50	29.504	44	29.343
13	29.509	(47)	29.510	47	29.510	50	29.504	48	29.500	50	29.500	51	29.515	50	29.327
14	29.502	(53)	29.512	53	29.500	52	29.511	51	29.500	50	29.502	51	29.504	54	29.377
15	29.502	(51)	29.512	51	29.500	53	29.509	56	29.515	50	29.501	56	29.520	54	29.353
16	29.502	(51)	29.512	51	29.502	53	29.500	50	29.506	58	29.510	59	29.515	54	29.306
17	29.502	(57)	29.522	57	29.518	52	29.511	51	29.500	50	29.506	50	29.507	52	29.327
18	29.502	(53)	29.512	53	29.506	50	29.500	50	29.500	50	29.500	50	29.510	50	29.346
19	29.502	(53)	29.512	53	29.506	50	29.500	53	29.507	57	29.504	58	29.509	54	29.362
20	29.502	(59)	29.510	50	29.500	50	29.500	54	29.504	59	29.506	59	29.510	54	29.342
21	29.510	50	29.512	52	29.510	54	29.512	56	29.522	55	29.520	60	29.521	56	29.391
22	29.510	50	29.510	50	29.510	50	29.510	54	29.510	54	29.510	54	29.510	54	29.394
23	29.510	50	29.510	50	29.510	54	29.510	54	29.510	54	29.510	54	29.510	54	29.349
24	29.510	54	29.510	45	29.500	48	29.500	47	29.500	47	29.500	53	29.507	47	29.388
25	29.515	49	29.518	42	29.502	44	29.500	50	29.504	50	29.507	53	29.514	46	29.327
26	29.510	42	29.512	42	29.502	44	29.502	44	29.502	44	29.502	44	29.502	44	29.347
27	29.510	42	29.512	44	29.502	44	29.502	44	29.502	44	29.502	44	29.502	44	29.342
28	29.508	42	29.502	45	29.500	48	29.500	48	29.500	48	29.500	48	29.500	48	29.353
29	29.510	40	29.502	48	29.500	51	29.500	54	29.500	54	29.500	54	29.500	54	29.381
30	29.510	43	29.502	49	29.502	53	29.504	50	29.506	50	29.506	50	29.506	51	29.350
Mean	29.514	47	29.508	47	29.502	46	29.502	50	29.502	54	29.515	54	29.502	50.5	
At 32°	29.734		29.716		29.748		29.764		29.760		29.750		29.764		29.744

November, 1857. 29 Inches +. Mean Lat. 74° 8 N., Long. 69° 1 W.

DAY.	4h.		5h.		Noon.		4h.		5h.		Midnight.		Mean.		At 30°.
	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	
1	29.502	42	29.510	47	29.512	49	29.518	56	29.506	54	29.514	50	29.508	49.7	
2	29.504	45	29.514	43	29.508	50	29.512	56	29.506	59	29.511	58	29.506	52.7	
3	29.504	44	29.510	46	29.500	50	29.504	52	29.506	57	29.512	58	29.506	51.2	
4	29.520	45	29.522	(54)	29.522	52	29.500	57	29.500	51	29.508	56	29.522	56.2	
5	29.508	49	29.512	49	29.510	52	29.510	59	29.512	59	29.518	59	29.518	54.2	
6	29.508	44	29.510	46	29.518	52	29.508	52	29.508	52	29.508	52	29.508	51.7	
7	29.510	45	29.512	45	29.510	54	29.510	53	29.510	57	29.510	57	29.510	50.8	
8	29.514	45	29.512	49	29.508	49	29.500	54	29.500	57	29.511	58	29.518	52.0	
9	29.510	48	29.518	49	29.500	50	29.510	51	29.512	55	29.512	55	29.518	50.7	
10	29.512	44	29.512	47	29.504	51	29.508	53	29.508	53	29.508	54	29.511	51.4	
11	29.508	48	29.510	50	29.512	55	29.518	59	29.518	58	29.518	58	29.518	50.5	
12	29.511	45	29.510	47	29.510	50	29.510	50	29.510	57	29.514	56	29.518	52.6	
13	29.510	46	29.512	48	29.512	52	29.518	55	29.518	55	29.518	57	29.518	52.6	
14	29.510	46	29.514	54	29.510	54	29.510	54	29.510	54	29.510	54	29.510	52.3	
15	29.510	47	29.514	50	29.512	55	29.518	55	29.518	55	29.518	55	29.518	52.6	
16	29.512	46	29.514	45	29.514	57	29.518	58	29.518	58	29.518	58	29.518	52.6	
17	29.512	49	29.518	48	29.518	56	29.518	57	29.518	57	29.518	57	29.518	52.3	
18	29.518	47	29.512	49	29.518	52	29.518	52	29.518	52	29.518	52	29.518	52.3	
19	29.514	52	29.522	56	29.512	56	29.500	57	29.508	58	29.518	58	29.518	52.3	
20	29.518	49	29.510	51	29.512	55	29.518	58	29.518	58	29.518	58	29.518	52.5	
21	29.518	49	29.510	50	29.518	58	29.518	58	29.518	58	29.518	58	29.518	52.5	
22	29.518	46	29.518	45	29.518	52	29.518	52	29.518	52	29.518	52	29.518	52.5	
23	29.518	45	29.510	50	29.518	55	29.518	55	29.518	55	29.518	55	29.518	52.3	
24	29.518	45	29.510	50	29.518	55	29.518	55	29.518	55	29.518	55	29.518	52.3	
25	29.518	45	29.510	50	29.518	55	29.518	55	29.518	55	29.518	55	29.518	52.3	
26	29.518	45	29.510	50	29.518	55	29.518	55	29.518	55	29.518	55	29.518	52.3	
27	29.518	45	29.510	50	29.518	55	29.518	55	29.518	55	29.518	55	29.518	52.3	
28	29.518	45	29.510	50	29.518	55	29.518	55	29.518	55	29.518	55	29.518	52.3	
29	29.518	45	29.510	50	29.518	55	29.518	55	29.518	55	29.518	55	29.518	52.3	
30	29.518	45	29.510	50	29.518	55	29.518	55	29.518	55	29.518	55	29.518	52.3	
Mean	29.518	46.8	29.510	49.3	29.518	53.3	29.518	56.0	29.518	57.4	29.518	57.2	29.518	53.2	
At 32°	29.637		29.636		29.642		29.674		29.674		29.647		29.650		

* Refers to 29 inches.

READINGS OF THE MARINE MERCURIAL BAROMETER, AINE No. 208, ON BOARD THE YACHT FOX.
December, 1857. 29 inches +. Mean Lat. 74° 3 N., Long. 67° 4 W.

Day.	4h.		5h.		Noon.		4h.		5h.		Midnight.		Mean.	
	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.
1	1.225	57	1.225	49	1.228	21	1.231	47	1.181	49	1.150	58	1.193	56.2
2	1.194	44	1.198	42	.979	52	.925	51	.992	63	.953	57	1.059	56.3
3	.708	46	.702	49	.746	61	.668	22	.632	52	.596	60	0.599	56.0
4	.570	43	.528	42	.494	47	.524	51	.524	52	.478	47	.432	47.0
5	.450	37	.410	48	.328	47	.282	53	.182	55	.147	54	0.340	49.0
6	.130	43	.092	41	.146	52	.194	55	.275	61	.374	62	0.196	49.0
7	.459	43	.502	41	.712	48	.775	50	.847	51	.905	51	.9307	47.3
8	.860	45	.868	44	.958	51	.964	54	1.023	66	1.055	59	0.958	51.5
9	1.081	45	1.112	50	1.134	52	1.128	58	1.128	55	1.129	58	1.117	53.0
10	1.080	44	1.022	48	1.096	53	1.125	57	1.128	58	1.169	59	1.090	53.0
11	1.162	45	1.190	48	1.185	50	1.201	65	1.143	55	.999	56	1.142	61.7
12	.760	48	.812	39	.433	50	.398	58	.359	59	.281	69	.467	52.2
13	.160	48	.490	46	.109	49	.153	55	.199	57	.238	58	.5163	51.7
14	.254	50	.315	48	.421	57	.449	56	.492	56	.608	56	.410	53.8
15	.612	46	.610	46	.720	54	.597	54	.611	58	.605	60	.549	53.3
16	.683	49	.582	47	.584	54	.618	58	.636	58	.518	59	.604	54.3
17	.629	49	.600	46	.624	64	.632	57	.654	69	.632	56	.623	58.2
18	.631	47	.635	48	.658	58	.652	61	.664	60	.660	51	.659	55.5
19	.630	51	.642	52	.776	59	.812	60	.875	58	.829	59	.770	56.2
20	.639	48	.692	50	.305	58	.385	60	.430	51	.590	62	.6097	55.0
21	.621	50	.550	50	.600	56	.703	55	.739	59	.830	59	.670	55.0
22	.830	48	.838	47	.858	58	.855	40	.855	40	.815	60	.833	55.0
23	.736	48	.710	52	.732	54	.740	59	.824	59	.868	56	.750	45.0
24	.859	48	.868	49	.938	57	.940	59	.944	62	.811	63	.911	56.5
25	.733	51	.614	52	.388	53	.588	60	.364	55	.541	56	.604	54.5
26	.688	47	.468	46	.561	56	.561	56	.565	55	.552	52	.552	55.5
27	.154	44	.062	46	.080	54	.800	59	.830	58	.848	61	.016	53.3
28	.946	50	.922	46	.986	54	.954	58	.938	61	.930	59	.901	54.7
29	.846	48	.812	45	.954	58	.076	69	.223	59	.354	64	.941	53.2
30	.389	48	.472	47	.564	58	.690	60	.644	62	.705	61	.653	56.3
31	.762	49	.782	46	.774	56	.800	64	.825	61	.774	60	.771	56.3
Mean	0.610	48.9	0.592	46.6	0.617	53.3	0.632	60.5	0.640	66.9	0.633	57.6	0.620	53.0
At 23	29.560		29.544		29.552		29.558		29.546		29.556		29.545	

January, 1858. 29 inches +. Mean Lat. 73° 2 N., Long. 65° 1 W.

Day.	4h.		5h.		Noon.		4h.		5h.		Midnight.		Mean.	
	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.
1	.784	42	.712	45	.658	59	.634	58	.585	63	.469	62	0.638	54.8
2	.381	44	.380	46	.418	60	.410	60	.376	60	.291	62	0.377	54.0
3	.151	44	.984	48	.838	59	.788	63	.754	63	.771	64	.901	57.5
4	.718	61	.792	42	.848	60	.854	58	.846	59	.686	60	.875	55.5
5	.160	49	.142	47	.172	56	.127	60	.080	60	.676	64	.616	62.5
6	.012	55	.906	51	.982	60	.984	60	.974	59	.550	58	.978	55.5
7	.925	47	.942	44	.920	52	.074	57	.120	60	.160	61	.041	53.5
8	.140	48	.342	47	.144	52	.127	56	.141	57	.134	58	.154	52.8
9	.460	48	.088	46	.137	55	.159	61	.191	61	.292	62	.141	56.0
10	.245	52	.250	50	.330	55	.377	55	.451	56	.495	55	.355	54.6
11	.615	48	.542	44	.612	52	.631	59	.657	59	.698	60	.614	55.7
12	.662	48	.674	49	.692	56	.712	56	.704	56	.638	56	.627	53.5
13	.845	48	.816	48	.826	52	.798	41	1.000	60	1.028	65	.785	57.0
14	1.369	52	1.472	48	1.510	69	1.628	55	1.254	56	1.068	59	1.346	52.0
15	1.080	44	.836	49	.844	59	.835	58	.818	60	.800	64	.846	57.4
16	.760	50	.680	46	.658	60	.622	59	.647	62	.691	58	.677	54.0
17	.704	49	.738	46	.710	59	.722	58	.966	50	1.045	62	.808	56.0
18	1.037	49	1.062	46	1.093	55	1.098	62	1.081	62	1.038	58	1.058	54.8
19	1.038	47	1.062	45	1.040	55	1.100	59	1.108	59	1.055	61	1.064	54.8
20	.924	45	.758	47	.716	54	.710	54	.640	54	.525	56	.627	53.5
21	.650	46	.610	44	.551	50	.584	58	.590	56	.727	61	.581	63.8
22	.770	49	.792	45	.852	54	.705	63	.661	64	.421	55	.570	51.7
23	.268	43	.406	40	.540	53	.710	55	.790	57	.746	56	.6576	56.7
24	.645	45	.632	43	.646	61	.613	53	.634	50	.634	53	.614	49.0
25	.078	48	.062	48	.070	50	.088	54	.947	53	.912	53	.016	50.2
26	.926	44	.692	42	.125	52	.189	52	.188	56	.123	54	.097	50.0
27	.645	44	.136	42	.300	53	.450	54	.605	55	.720	60	.783	61.2
28	.792	45	.846	41	.810	52	.857	53	1.015	53	1.046	56	.914	52.5
29	1.120	44	1.175	42	1.325	51	1.440	57	1.550	54	1.024	58	1.374	51.0
30	1.665	44	1.755	44	1.880	53	1.973	57	1.942	58	1.967	61	1.894	52.8
31	1.894	50	1.722	46	1.820	57	1.622	51	1.238	58	1.130	56	1.505	55.0
Mean	0.561	47.5	0.655	45.6	0.693	56.6	0.694	67.4	0.699	68.0	0.599	62.0	0.587	54.0
At 32	29.511		29.510		29.521		29.527		29.530		29.519		29.520	

* Refers to 28 inches.

OF THE OBSERVATIONS FOR ATMOSPHERIC PRESSURE. 97

READINGS OF THE MARINE MERCURIAL BAROMETER, ADJ. NO. 268, ON BOARD THE YACHT FOX.
February, 1858. 29 Inches +. Mean Lat. 11° 5 N., Long. 60° 9 W.

DATE.	4h.		5h.		Noon.		4h.		5h.		Midnight.		Mean.	
	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.
1	1.643	45	1.641	45	1.642	45	1.641	45	1.642	45	1.641	45	1.642	45
2	1.640	44	1.638	45	1.637	44	1.642	45	1.641	45	1.640	45	1.640	45
3	1.646	47	1.640	45	1.637	44	1.643	45	1.646	45	1.645	45	1.645	45
4	1.647	49	1.643	45	1.642	45	1.646	45	1.649	45	1.646	45	1.646	45
5	1.650	52	1.648	48	1.649	53	1.652	59	1.652	59	1.649	61	1.649	59
6	1.647	50	1.642	50	1.643	59	1.643	60	1.640	61	1.646	63	1.647	57
7	1.650	53	1.644	51	1.644	56	1.649	62	1.649	62	1.644	61	1.644	56
8	1.652	49	1.652	56	1.652	59	1.654	61	1.652	62	1.654	59	1.652	56
9	1.656	49	1.656	62	1.654	62	1.654	60	1.656	61	1.652	67	1.657	56
10														
11														
12														
13														
14														
15														
16														
17	1.643	53	1.644	55	1.644	56	1.644	59	1.649	59	1.652	63	1.654	57.5
18	1.643	52	1.642	52	1.648	58	1.645	59	1.649	58	1.648	70	1.649	59.5
19	1.643	50	1.638	51	1.640	56	1.642	59	1.642	58	1.640	69	1.642	55.7
20	1.640	55	1.642	53	1.644	58	1.641	59	1.640	60	1.647	58	1.649	57.0
21	1.640	55	1.642	56	1.642	58	1.642	60	1.640	60	1.646	61	1.646	59.5
22	1.644	58	1.640	59	1.644	62	1.648	63	1.649	62	1.642	61	1.642	60.8
23	1.646	59	1.646	56	1.643	61	1.649	62	1.648	62	1.645	60	1.645	58.5
24	1.647	54	1.644	51	1.648	62	1.641	61	1.648	64	1.644	67	1.645	56.2
25	1.652	53	1.648	51	1.644	59	1.646	65	1.644	61	1.645	62	1.644	59.5
26	1.650	57	1.650	56	1.644	54	1.643	62	1.646	59	1.642	63	1.644	59.2
27	1.652	51	1.644	52	1.644	56	1.652	61	1.644	69	1.647	59	1.654	56.5
28	1.650	49	1.652	51	1.652	59	1.654	60	1.651	55	1.651	69	1.654	55.7
Mean	0.623	51.2	0.603	52.3	0.651	57.7	0.657	60.4	0.661	59.4	0.643	60.2	0.640	56.9
At 32°	29.563		29.549		29.674		29.673		29.580		29.562		29.565	

March, 1858. 29 Inches +. Mean Lat. 69° 4 N., Long. 59° 1 W.

DATE.	4h.		5h.		Noon.		4h.		5h.		Midnight.		Mean.	
	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.
1	1.640	45	1.644	50	1.645	58	1.649	61	1.649	61	1.649	55	1.649	55.2
2	1.648	48	1.649	58	1.644	61	1.644	62	1.648	63	1.652	58	1.652	56.3
3	1.654	48	1.652	53	1.650	59	1.658	68	1.660	61	1.648	57	1.647	56.9
4	1.650	48	1.652	52	1.646	62	1.646	64	1.640	69	1.640	60	1.647	57.7
5	1.648	53	1.648	54	1.644	58	1.642	58	1.644	59	1.644	63	1.643	57.5
6	1.645	59	1.650	55	1.644	60	1.648	60	1.640	62	1.643	63	1.642	58.2
7	1.649	52	1.644	55	1.648	60	1.646	60	1.646	60	1.640	58	1.643	57.2
8	1.642	48	1.644	51	1.648	55	1.646	57	1.642	59	1.640	62	1.642	55.3
9	1.650	50	1.649	51	1.646	53	1.640	59	1.640	57	1.644	55	1.643	54.2
10	1.645	47	1.650	54	1.644	52	1.646	61	1.646	61	1.640	61	1.646	53.8
11	1.642	52	1.648	57	1.642	54	1.640	60	1.646	60	1.646	63	1.644	57.3
12	1.647	52	1.650	52	1.646	62	1.648	60	1.647	60	1.640	60	1.640	57.7
13	1.649	50	1.652	56	1.644	64	1.648	60	1.649	61	1.644	67	1.645	59.7
14	1.649	55	1.644	53	1.646	56	1.640	63	1.648	60	1.644	58	1.649	58.8
15	1.642	47	1.640	48	1.640	54	1.629	58	1.640	61	1.640	64	1.642	55.3
16	1.642	50	1.644	57	1.640	58	1.642	58	1.640	61	1.640	64	1.644	57.0
17	1.648	48	1.646	54	1.640	52	1.648	57	1.642	58	1.642	58	1.643	54.6
18	1.646	50	1.646	54	1.640	52	1.646	58	1.646	58	1.644	55	1.646	53.8
19	1.648	46	1.648	50	1.651	53	1.646	54	1.646	55	1.642	59	1.646	53.2
20	1.648	47	1.648	51	1.645	54	1.644	59	1.649	54	1.642	58	1.643	54.2
21	1.651	54	1.642	54	1.652	54	1.640	56	1.646	56	1.642	56	1.643	55.0
22	1.645	45	1.648	53	1.646	57	1.644	60	1.644	59	1.644	58	1.642	54.8
23	1.644	50	1.644	48	1.645	58	1.647	60	1.648	63	1.642	62	1.642	55.8
24	1.645	50	1.646	52	1.642	60	1.646	60	1.646	65	1.643	58	1.641	57.5
25	1.642	48	1.644	50	1.640	58	1.641	67	1.642	55	1.646	58	1.642	54.3
26	1.647	47	1.646	51	1.640	52	1.640	53	1.646	52	1.646	52	1.649	52.0
27	1.640	41	1.644	50	1.655	53	1.640	51	1.645	53	1.644	56	1.643	56.7
28	1.642	46	1.642	44	1.646	49	1.640	51	1.648	51	1.640	42	1.641	47.8
29	1.642	52	1.645	52	1.640	51	1.648	45	1.648	53	1.640	56	1.642	53.0
30	1.642	42	1.648	50	1.647	52	1.644	53	1.644	52	1.644	57	1.649	52.2
31	1.642	40	1.649	61	1.640	49	1.642	47	1.644	52	1.645	53	1.647	46.2
Mean	0.934	48.4	0.934	52.3	0.941	55.5	0.971	57.4	0.970	58.3	0.960	56.1	0.952	55.1
At 32°	29.880		29.872		29.839		29.894		29.880		29.841		29.861	

* In feet to 20 inches.

RECORD AND REDUCTION

READINGS OF THE MARINE MERCURIAL BAROMETER, ADSE No. 203, ON BOARD THE YACHT FOX
April, 1858. 29 Inches +. Mean Lat. 74° 9 N., Long. 68° 8 W.

DAT.	1 st		2 nd		3 rd		4 th		5 th		Midnight.		Mean.	
	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.	Bar.	Th.
1	3.00	47	1.070	55	3.00	46	1.102	55	3.00	46	1.063	58	1.073	55.5
2	3.01	48	1.074	55	3.00	46	1.102	54	3.04	50	1.068	51	1.082	52
3	3.20	43	1.002	53	3.00	46	1.102	55	3.00	46	1.063	58	1.073	55.5
4	3.39	44	1.031	53	3.04	48	1.102	55	3.00	46	1.063	58	1.073	55.5
5	3.67	48	1.094	58	3.04	48	1.102	55	3.00	46	1.063	58	1.073	55.5
6	3.74	48	1.092	58	3.00	46	1.102	55	3.00	46	1.063	58	1.073	55.5
7	3.142	48	1.112	52	3.03	46	1.110	53	3.100	53	1.100	50	1.107	52.5
8	3.00	48	1.052	53	3.04	48	1.104	55	3.00	46	1.063	58	1.073	55.5
9	3.751	47	1.102	48	3.00	46	1.102	55	3.00	46	1.063	58	1.073	55.5
10	3.00	48	1.052	53	3.04	48	1.104	55	3.00	46	1.063	58	1.073	55.5
11	3.00	48	1.052	53	3.04	48	1.104	55	3.00	46	1.063	58	1.073	55.5
12	3.168	62	1.047	54	3.111	56	1.124	56	3.121	59	1.073	58	1.105	57
13	3.566	68	1.067	57	3.135	54	1.128	49	3.124	59	1.092	62	1.159	60
14	3.109	48	1.069	47	3.063	53	1.144	59	3.032	47	1.052	54	1.075	53.8
15	3.512	50	1.072	56	3.175	55	1.139	57	3.014	62	1.017	58	1.069	53.5
16	3.743	48	1.071	55	3.148	56	1.138	59	3.097	61	1.018	61	1.043	55.1
Mean	3.084	48.8	1.071	53.3	3.064	53.3	1.093	54.4	1.099	56.1	1.073	57.3	1.088	55.9
At 22 nd	3.030		3.004		3.030		3.023		3.025		3.016		3.029	

FIRST YEAR.—RECAPITULATION OF MEAN READINGS FROM THE PRECEDING RECORD OF THE ANEROID BAROMETER, No. 17701, from September, 1857, to September, 1858.

[illegible]

SECOND YEAR.—RECAPITULATION OF MEAN READINGS FROM THE PRECEDING RECORD OF THE
ANEROID BAROMETER, No. 17701, from September, 1858, to September, 1859.
At Port Kennedy: Lat. 72° 0' N., Long. 94° 9' W.

	1858.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Noon.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Midn.	Mean.
Sept.		39.084		39.105		39.110		39.118		39.127		39.137		39.124
Oct.		39.073		39.087		39.092		39.098		39.103		39.108		39.095
Nov.		39.245	39.251	39.254	39.263	39.270	39.275	39.281	39.284	39.278	39.283	39.270	39.284	39.268
Dec.		39.054	39.043	39.033	39.029	39.024	39.020	39.022	39.105	39.035	39.024	39.020	39.021	39.029
1859, Jan.		39.172	39.185	39.148	39.149	39.127	39.130	39.122	39.203	39.207	39.206	39.202	39.200	39.185
Feb.		39.135	39.129	39.110	39.134	39.140	39.046	39.235	39.151	39.154	39.152	39.150	39.148	39.148
March		39.324	39.320	39.345	39.356	39.364	39.368	39.397	39.409	39.407	39.407	39.407	39.396	39.396
April		39.363		39.401		39.380		39.296		39.296		39.271		39.324
May		39.170		39.205		39.220		39.235		39.245		39.254		39.231
June		39.111		39.122		39.127		39.131		39.131		39.132		39.125
July	39.579	39.583	39.587	39.595	39.594	39.593	39.595	39.594	39.594	39.590	39.584	39.593	39.592	39.592
Aug.		39.436		39.440		39.453		39.463		39.462		39.474		39.454
		39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	40.0	40.1	40.2	39.9

RECAPITULATION OF MEAN READINGS FROM THE PRECEDING RECORD OF THE MARINE MERCURIAL BAROMETER, ADP No. 204, ON BOARD THE YACHT FOX.
The readings are reduced to the temperature 32°. The cistern is 4 feet above the level of the sea.

AVERAGE		1857.	4h.	8h.	Noon.	4h.	8h.	Midn't.	Mean.
R. Lat.	W. Long.								
75° 2	65° 3	September	Inches. 29.656	Inches. 29.643	Inches. 29.657	Inches. 29.672	Inches. 29.658	Inches. 29.646	Inches. 29.654
75.2	65.9	October	29.724	29.716	29.748	29.764	29.760	29.759	29.744
74.8	69.1	November	29.631	29.636	29.642	29.674	29.674	29.647	29.650
74.3	67.4	December	29.560	29.544	29.552	29.558	29.564	29.566	29.555
73.2	61.7	1858, January	29.511	29.510	29.521	29.527	29.539	29.519	29.520
71.5	69.0	February	29.563	29.546	29.554	29.573	29.569	29.562	29.563
69.4	59.3	March	29.880	29.872	29.863	29.894	29.890	29.881	29.881
67.9	61.8	April	30.020	30.004	30.019	30.023	30.025	30.016	30.020

Comparison of the Readings of the Aneroid and Mercurial Barometers.

The preceding tabular results furnish the means of comparing the two barometers, and of deducing a correction to the indications of the aneroid barometer, in order to give the readings obtained from the mercurial barometer, referred to 32° of temperature. This correction is necessarily independent of the temperature, there being no thermometric readings in connection with the aneroid: any constant correction for difference of level between the two instruments is included. The following table contains the corresponding readings at the same days and hours, each being the mean of six observations a day.

Table of comparison of corresponding mean readings of the mercurial and the aneroid barometer, and resulting correction to the latter.

Days.	Mercurial.	Aneroid.	M-A Δ
1857, September	Inches. 29.654	Inches. 29.878	Inch. -0.224
	October	29.559	-0.212
	November	29.659	-0.215
	December	29.555	-0.218
1858, January	29.520	29.739	-0.219
	February	29.565	-0.227
	March	29.881	-0.224
	April	30.020	-0.223
Mean	—	Δ =	-0.223

These differences appear remarkably regular, and show that the mean monthly readings of the aneroid may be relied on to one-hundredth of an inch. There appears to be no tendency of a change of Δ depending on the higher or lower reading of the barometer, nor is there any variation due to changes in temperature. The correction to the aneroid readings to refer them to the corresponding readings

* The mean of 11 days, from Sept. 20th to 30th.

* The mean of 21 days, from Feb. 1st to 9th, and from Feb. 17th to 28th.

* The mean of 16 days, from April 1st to 16th.

of the mercurial barometer is, therefore, -0.22 inches. This quantity, strictly speaking, is composed of two parts; the first, the true index error of the aneroid, and the second, the specific difference of the two instruments in different latitudes, the mercurial barometer (weighing a mass of mercury against a mass of air) being independent of a change of gravity, whereas the aneroid barometer is sensible to any increase of gravity as we proceed to the northern high latitudes. Within the limits of latitudes $66^{\circ}.0$ N. and $75^{\circ}.3$ N. this variation amounts to 0.014 inches; and its greatest difference from the mean, say in latitude $72^{\circ}.0$ N., is, therefore, ± 0.008 inches. This quantity being smaller than the uncertainty of the results by the aneroid, I have considered it as a correction that can safely be neglected. The formula $b = b_{45} (1 - 0.0026 \cos 2 \phi)$ shows the variation for any latitude ϕ .

North of latitude 45° the aneroid gives the higher readings.

Resulting mean 4-hourly and mean monthly readings of the mercurial barometer in the months of September, 1857, and February and April, 1858.—The results for these months, given above, require a small correction to refer them from part of the month to the whole month; this was obtained by means of the known aneroid readings for the interval when the mercurial barometer was not read, the index correction $-0^{\text{h}}.22$ having first been applied. We find—

Referred mean readings of the mercurial barometer for the full months of September, February, and April, of the first year:—

Ayer's.		Month.	4h.	6h.	Noon.	4h.	6h.	Midn.	Mean.
S. Lat.	N. Long.								
75°.3	65°.0	1857, September	29.797	29.715	29.777	29.713	29.724	29.728	29.724
71.5	64.3	1858, February	29.621	29.609	29.644	29.673	29.654	29.612	29.617
66.0	57.7	1858, April	29.530	29.522	29.525	29.522	29.530	29.536	29.529

The following comparisons were made for the purpose of ascertaining how near the mean of 6 and 12 observations a day approximate to the true daily mean as derived from hourly observations. The following mean hourly readings, taken for 15 days between January 6 and January 22, 1858, are taken from the record; also the means for 7 days in January, 1859, and for 15 days in July, 1859. (Of these observations I find only the results recorded.)

OF THE OBSERVATIONS FOR ATMOSPHERIC PRESSURE. 101

JANUARY, 1858. For 15 DAYS.							
Hour A. M.	Bar.	Hour A. M.	Bar.	Hour P. M.	Bar.	Hour P. M.	Bar.
1	29.740	7	29.697	1	29.739	7	29.782
2	.7113	8	.695	2	.742	8	.797
3	.724	9	.705	3	.748	9	.798
4	.718	10	.722	4	.758	10	.792
5	.719	11	.731	5	.774	11	.796
6	.700	Noon	.797	6	.778	Midn't	.795
Mean of 24 observations a day . . .				29.746			
" " 12 " " . . .				.746	From the even hours,		
" " 6 " " . . .				.748	" " " "		
including noon and midnight, and at equal intervals.							
JANUARY, 1859. For 7 DAYS.							
Hour A. M.	Bar.	Hour A. M.	Bar.	Hour P. M.	Bar.	Hour P. M.	Bar.
1	30.107	7	30.020	1	30.040	7	30.051
2	.029	8	.047	2	.038	8	.050
3	.029	9	.059	3	.043	9	.049
4	.013	10	.053	4	.051	10	.039
5	.008	11	.050	5	.053	11	.040
6	.003	Noon	.040	6	.053	Midn't	.043
Mean of 24 observations a day . . .				30.038			
" " 12 " " . . .				.038	From the even hours,		
" " 6 " " . . .				.041	" " " "		
and at equal intervals.							
JULY, 1859. For 15 DAYS.							
Hour A. M.	Bar.	Hour A. M.	Bar.	Hour P. M.	Bar.	Hour P. M.	Bar.
1	30.012	7	30.049	1	30.067	7	30.056
2	.012	8	.061	2	.068	8	.044
3	.011	9	.071	3	.064	9	.035
4	.016	10	.072	4	.060	10	.025
5	.021	11	.073	5	.071	11	.022
6	.026	Noon	.064	6	.065	Midn't	.013
Mean of 24 observations a day . . .				30.049			
" " 12 " " . . .				.049	From the even hours,		
" " 6 " " . . .				.047	" " " "		
and at equal intervals.							

The results show conclusively that the hourly and bi-hourly series give the same mean, and that the mean, deduced from six observations a day, does not materially differ from either; no correction need therefore be applied to daily means derived from readings at intervals of two and four hours.

Diurnal Variation of the Atmospheric Pressure.

The diurnal variation, which is almost vanishing in the higher latitudes of the Arctic regions, can only be satisfactorily traced by means of a combination of a great number of observations; it is also frequently masked by the great irregular fluctuations in the atmospheric pressure. The observations were, therefore, grouped,

the first part comprising the results in Baffin Bay, from September, 1857, to August, 1858, inclusive, and the second part, the results at Port Kennedy, from September, 1858, to August, 1859, inclusive.

For greater convenience the results by the aneroid have been reduced to the results by the mercurial barometer, by the application of the correction $-0^{\circ}.221$.

The readings for the hours 4, 8, 12, A. M. and P. M., for the first eight months between Sept. and April, were taken from the preceding abstract of the mercurial barometer (the readings in Sept. February, and April from the table containing the referred means). All tabular numbers for the same eight months, at the hours 2, 6, 10, A. M. and P. M., are derived from the readings of the aneroid barometer by interpolation by means of differences; thus to obtain the reading at 10 A. M., in September, we have—

Aneroid reading at 10 A. M. 0.013 greater than at 8 A. M. Mercurial barometer reading at 8 A. M. = 29.715, hence at 10 A. M. = 29.728; again, aneroid at 10 A. M. 0.003 smaller than at noon. Mercurial barometer at noon 29.727, hence at 10 A. M. = 29.724, and the resulting mean from the comparison of the preceding and following hour becomes 29.726 as given in the table.

The annual mean for the hours 2, 6, 10, A. M. and P. M. is obtained in a similar manner; thus, for 10 A. M. we have: From 8 months, Sept. to April, mean at 10 A. M., the reading 0.020 greater than at 8 A. M. or = 29.731 + 0.020; it is also 0.006 greater than at noon or = 29.743 + 0.006; the mean of the two values is 29.750 as given in the table.

Diurnal variation of the atmospheric pressure during the year from September, 1857, to August, 1858, in mean latitude $72^{\circ}.6$ N., and mean longitude $65^{\circ}.8$ W.; nearly in the centre of Baffin Bay. 29 inches is to be added to the tabular numbers.

Month.	2h.	4h.	6h.	8h.	10h.	Noon.	2h.	4h.	6h.	8h.	10h.	Mean.
1857, Sept.	.713	.707	.710	.715	.726	.727	.716	.722	.730	.728	.727	.728
Oct.	.727	.724	.710	.716	.747	.748	.750	.704	.762	.760	.755	.750
Nov.	.632	.631	.636	.636	.661	.642	.654	.674	.680	.674	.667	.647
Dec.	.508	.509	.547	.544	.558	.552	.531	.558	.566	.565	.566	.556
1858, Jan.	.507	.511	.504	.510	.530	.523	.520	.527	.532	.530	.524	.519
Feb.	.625	.621	.614	.609	.644	.648	.646	.653	.654	.655	.648	.632
Mar.	.876	.880	.868	.872	.887	.889	.880	.884	.886	.880	.870	.881
April	.931	.930	.929	.922	.928	.923	.920	.922	.923	.909	.940	.916
May		.904		1.003		1.009		1.005		1.010		1.002
June		.785		.795		.818		.812		.819		.805
July		.725		.741		.745		.751		.754		.729
Aug.		.697		.711		.721		.743		.745		.747
Mean		.730		.731		.743		.753		.756		.743
Completed mean	.733		.726		.750		.745		.756		.753	

The table of bi-hourly means for the second group was obtained from the general recapitulation of result, by subtracting 0.221 from each mean to reduce it to the reading of the standard marine barometer, and by referring the incomplete means at the hours 2, 6, 8, A. M. and P. M., to their corresponding value for a complete series of 12 values by a process similar to that explained in case of the preceding table.

Diurnal variation of the atmospheric pressure during the year from September, 1858, to August, 1859, at Port Kennedy, in latitude $72^{\circ}.0$ N., and longitude $94^{\circ}.2$ W. 29 inches is to be added to the tabular numbers, which, as well as the preceding tabular numbers for 1857-8, should be considered as reduced to the temperature 32° (Fahr.).

Month.	2h.	4h.	6h.	8h.	10h.	Noon.	2h.	4h.	6h.	8h.	10h.	Mean.
1858, Sept.		.803		.804		.809		.807		.806		.806
Oct.		.741		.740		.805		.777		.810		.795
Nov.	1.022	1.000	1.003	1.002	1.002	1.040	1.042	1.057	1.057	1.040	1.043	
Dec.		.828	.802	.840	.873	.864	.871	.884	.874	.873	.869	.860
1859, Jan.		.951	.927	.927	.939	.976	.969	.971	.962	.966	.960	.979
Feb.		.944	.899	.889	.925	.928	.934	.939	.933	.941	.929	.919
Mar.	1.123	1.114	1.124	1.159	1.165	1.165	1.165	1.172	1.179	1.185	1.184	1.175
April		1.142		1.180		1.168		1.175		1.182		1.153
May		.951		.902		1.008		1.012		1.024		1.010
June		.890		.901		.901		.918		.909		.898
July		.854		.894		.912		.919		.903		.891
Aug.	.828	.715	.656	.719	.703	.730	.727	.742	.769	.741	.682	.725
Mean		.857		.925		.933		.929		.943		.925
Computed Mean	.906		.891		.925		.936		.940		.934	

These results, when expressed analytically by means of Bessel's form of periodic functions with application of the method of least squares, become—

1. For Baffin Bay, 1857-1858—

Inches.

$$b = 29.743 + 0.013 \sin (\theta + 5^{\circ}) + 0.004 \sin (2\theta + 159^{\circ})$$

2. For Port Kennedy, 1858-1859—

Inches.

$$b = 29.925 + 0.021 \sin (\theta + 22^{\circ}) + 0.009 \sin (2\theta + 150^{\circ})$$

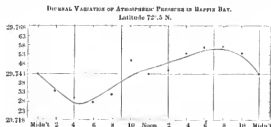
3. For Van Besselaar Harbor, 1853-54-55, for comparison—

Inches.

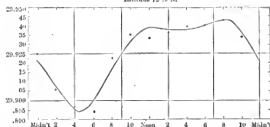
$$b = 29.765 + 0.003 \sin (\theta + 290^{\circ}) + 0.002 \sin (2\theta + 201^{\circ})$$

In which expressions the angle θ counts from noon at the rate of 15° an hour.

The comparison of the observations with the values deduced by the formulae is shown in the following two diagrams, in which the observed values are indicated by dots.



DIURNAL VARIATION OF ATMOSPHERIC PRESSURE AT PORT KENNEDY.
Latitude 72° 6' N.



These curves have in common a maximum at about 7½ P. M., and a minimum at about 4½ A. M.; the hour of maximum at Van Rensselaer Harbor was 10 P. M., whereas a minimum at 4 A. M. is hardly perceptible at this place. A secondary maximum is plainly indicated at Port Kennedy about noon, and a secondary minimum about 2½ P. M., which secondary minimum seems to correspond with the principal minimum at Van Rensselaer Harbor at 1½ P. M.

The range of the diurnal fluctuation of the barometer is as follows:—

1. In Baffin Bay 0.028 inches.
2. At Port Kennedy 0.048 "
3. At Van Rensselaer Harbor 0.010 "

Hence, between latitudes 72° 2 and 78° 6, there is a diminution in range of 0.028 inches; at this rate, the diurnal fluctuation would become insensible (be less than 0.001) in about 81° north latitude.

The following table of observed bi-hourly means is added for convenience of reference and for comparison:—

Hour.	Baffin Bay, Lat. 72° 2' N.	Port Kennedy, Lat. 72° 6' N.	Van Rensselaer, Lat. 78° 6' N.
2	29.733	29.906	29.765
4 . . . . .	.739	.897	.766
6 . . . . .	.726	.894	.766
8 . . . . .	.731	.923	.762
10 . . . . .	.750	.935	.764
Noon . . . . .	.743	.933	.763
2 . . . . .	.745	.936	.759
4 . . . . .	.753	.939	.763
6 . . . . .	.756	.940	.767
8 . . . . .	.756	.943	.769
10 . . . . .	.753	.934	.771
Midn't . . . . .	.743	.925	.768
Mean	29.743	29.925	29.763

Annual Variation of the Atmospheric Pressure.

The mean monthly height of the barometer is obtained directly from the preceding tables, showing the diurnal fluctuation, by applying to the monthly mean

OF THE OBSERVATIONS FOR ATMOSPHERIC PRESSURE. 105

the correction for index, +0.007, and the reduction to the level of the sea, +0.005. To the table I have added for comparison the values for Van Rensselaer Harbor (also referred to the level of the sea by applying +0.005).

MONTHLY MEAN READINGS OF THE BAROMETER AT THE LEVEL OF THE SEA, AND AT 32° FAHR.

Month.	1857-8.	1858-9.	1853, '54, '55.
	Baffin Bay. Lat. 72° S.	Port Kennedy. Lat. 72° S.	Van Rensselaer. Lat. 76° S.
January . . .	29.539	29.979	29.778
February . . .	29.649	29.933	.848
March . . .	29.898	30.172	.759
April . . .	29.940	*20.179	.903
May . . .	*20.014	20.010	*.942
June . . .	29.817	29.913	.719
July . . .	29.753	29.704	.741
August . . .	29.736	29.741	.694
September . .	29.735	29.899	.658
October . . .	29.756	29.798	.755
November . .	29.665	30.052	.758
December . .	29.570	29.972	29.753
Mean . . .	29.755	29.938	29.775

It should be remembered that the monthly means in the first column were obtained while the ship was drifting and sailing in Baffin Bay, on which account the annual fluctuation may not appear as plainly as if the ship had been stationary in the middle latitude 72° S. N.

The maximum in each series has been marked with an asterisk (*); it occurs either in April or May. The occurrence of the minimum does not agree at these stations; in Baffin Bay it occurred in January, at Port Kennedy in July, and at Van Rensselaer Harbor in September—showing plainly that more observations are required to fix the season or month in which it takes place on the average.

The preceding monthly values are represented by the formula:—

1. For Baffin Bay, 1857-8—

$$B = 29.755 + 0.155 \sin (\theta + 304^\circ) + 0.113 \sin (2\theta + 236^\circ)$$

(Greatest difference between an observed and computed value = 0.04 inches).

2. For Port Kennedy, 1858-59—

$$B = 29.938 + 0.137 \sin (\theta + 17^\circ) + 0.106 \sin (2\theta + 232^\circ)$$

(Greatest difference between observed and computed values; in October, —0.13, in November, +0.11).

3. For Van Rensselaer, 1853, '54, '55—

$$B = 29.775 + 0.079 \sin (\theta + 4^\circ) + 0.044 \sin (2\theta + 194^\circ)$$

Expressed in inches, and θ counting from January 1st, and at a rate of 30° a month.

The computed annual range, or the difference between the highest and lowest monthly mean, is as follows:—

Baffin Bay	0.44 inches.
Port Kennedy	0.41 "
Van Rensselaer	0.21 "

Taking the mean of the expressions for the three stations, the following formulæ furnish the type-curve for lat. $74^{\circ}.4$ N., and long. $77^{\circ}.0$ W., for the *diurnal* and *annual* variation of the atmospheric pressure:—

$$b = 29.823 + 0.012 \sin (\theta + 346^{\circ}) + 0.005 \sin (2\theta + 171^{\circ})$$

$$B = 29.823 + 0.124 \sin (\theta + 348^{\circ}) + 0.088 \sin (2\theta + 221^{\circ})$$

Diurnal Extremes.

The irregular oscillations from day to day are subject to an annual variation, as exhibited in the following table of average differences in the atmospheric pressure on consecutive days. The daily changes were made out, irrespective of sign, and were obtained from the comparison of the daily means of the aneroid readings.

To the two localities—Baffin Bay and Port Kennedy, I have added, for comparison, Van Rensselaer Harbor, and also a column for a mean of the three localities.

	1857-8. Baffin Bay. $72^{\circ}.5$ N. Lat.	1858-9. Port Kennedy. $72^{\circ}.0$ N. Lat.	1853, '54, '55. Van Rensselaer. $75^{\circ}.4$ N. Lat.	Mean.
September . . .	0.17 inches.	0.12 inches.	0.11 inches.	0.13 inches.
October . . .	0.19	0.21	0.15	0.18
November . . .	0.22	0.14	0.17	0.18
December . . .	0.21	0.12	0.26	0.20
January . . .	0.25	0.11	0.17	0.18
February . . .	0.20	0.16	0.26	0.21
March . . .	0.22	0.12	0.17	0.17
April . . .	0.19	0.16	0.12	0.16
May . . .	0.10	0.07	0.14	0.10
June . . .	0.12	0.10	0.10	0.10
July . . .	0.08	0.14	0.09	0.10
August . . .	0.11	0.12	0.10	0.10
Mean . . .	0.17	0.13	0.15	0.15

In Baffin Bay the progression is more regular than at Port Kennedy; the mean from the two stations compares very favorably with the result deduced from Dr. Kane's observations. The oscillations in the winter months are twice as great as those in the summer months.

The larger variations in the atmospheric pressure have already been noticed in the discussion of particular storms in the preceding part of the paper.

Monthly and Annual Extremes.

The following table contains the observed maxima and minima of the atmospheric pressure in each month, as observed by or referred to the mercurial marine barometer. (At 32° Fahr.)

Months.	BAFFIN BAY, 1857-58.			PORT KENNEDY, 1858-59.			FOR COMPARISON: VAN RENSSELAER HARBOR, 1853, '54, '55.		
	Max.	Min.	Range.	Max.	Min.	Range.	Max.	Min.	Range.
September	30.54	29.12	1.22	30.12	29.66	1.05	30.15	29.04	1.11
October	30.50	28.94	1.52	30.48	29.16	1.52	30.33	29.05	1.28
November	30.19	28.81	1.38	30.46	29.42	1.04	30.33	29.03	1.30
December	30.19	28.72	1.47	30.55	29.23	1.32	30.43	28.95	1.48
January	30.22	28.67	1.25	30.34	29.51	0.83	29.44	29.08	1.36
February	30.30	29.00	1.30	30.38	29.23	1.15	30.45	28.84	1.61
March	30.78	28.63	2.15	30.60	29.57	1.03	30.49	28.18	2.31
April	30.66	29.19	1.46	31.66	29.65	1.49	30.77	29.28	1.09
May	30.54	29.51	1.03	30.50	29.54	0.95	29.49	29.19	1.30
June	30.12	29.30	0.82	30.48	29.43	1.05	30.19	29.41	0.78
July	30.26	29.34	0.92	30.36	28.75	1.61	29.97	28.40	0.57
August	30.06	29.32	0.74	30.27	29.26	1.01	30.05	29.22	0.83
Mean	30.49	29.64	1.56	30.47	29.32	1.15	30.31	29.14	1.17

The monthly range is greatest in winter and least in summer in Baffin Bay and at Van Rensselaer Harbor; at Port Kennedy the amount of range is rather irregularly distributed over the year.

Absolute observed maxima and minima and extreme range (corrected for index error and referred to the level of the sea by the addition of 0.01).

LOCALITY.	Max.	Date.	Min.	Date.	Range.
Baffin Bay	30.53	Jan. 30, '58.	28.64	Mar. 11, '58	2.29
Port Kennedy	31.06	April 12, '59.	28.74	July 10, '59.	2.30
Van Rensselaer Harbor.	30.97	Jan. 23, '55.	28.84	Feb. 19, '54.	2.13

Relation of the Atmospheric Pressure to the Direction of the Wind.

In this investigation the aneroid readings alone have been employed. For this purpose the daily readings at the hours 6 A. M. and 6 P. M., and at noon and midnight, were compared with the corresponding mean of five days (two days before and two days after the day in question). This substitution of the penthemers for the monthly means, as normals, was considered a desirable improvement. Each difference was inserted in the column for the respective wind (eight in all with a column for calms). In the exceptional case, where no observation was made at one or the other of the above hours, the observation at the nearest hour adjacent was substituted. A + sign indicates a pressure higher than the mean, a — sign a pressure lower than the mean. The following table contains the results arranged for two localities of one years' observations for each (commencing with September); the results at Port Kennedy for the S. E., S., and S. W. winds, are contracted in one mean on account of the scarcity of wind from these directions. The results for Van Rensselaer² have been added for comparison.

² Exchanging the magnetic for the true direction, on page 111 of Dr. Kane's meteorological record and discussion; a correction already referred to before.

108 RECORD AND REDUCTION OF THE OBSERVATIONS, ETC.

Direction (true) of the wind.	1857-58. Baffin Bay. Lat. 72° S.	1858-59. Fort Kennedy. Lat. 72° S.	1853-4-5. Van Rensselaer. Lat. 76° S.
N.	+ 0.031 inches.	+ 0.004 inches.	— 0.023 inches.
N. E.	+ 0.009	— 0.024	} — 0.014
E.	+ 0.007	— 0.016	
S. E.	— 0.036	} + 0.015	0.000
S.	— 0.005		+ 0.038
S. W.	— 0.007		+ 0.045
W.	— 0.010	+ 0.005	— 0.031
N. W.	— 0.023	+ 0.003	— 0.031
Calm	+ 0.035	+ 0.012	+ 0.005

The maximum effect of any one wind (or calm) does not exceed 0.04 of an inch, and, considering the short period of observation, and the probable irregularity in the phenomenon itself, the above figures for any one locality show a tolerable degree of progression. During calms the barometer is higher on the average 0.017 inch.

The above tabular quantities (after omitting the calms and making the algebraic sum of the results for each place equal zero) are contained in the expressions—

$$\begin{aligned} & \text{For Baffin Bay} \quad \beta = + 0.015 \sin (\theta + 27^\circ) \\ & \text{For Fort Kennedy} \quad \beta = + 0.015 \sin (\theta + 181) \\ & \text{For Van Rensselaer} \quad \beta = + 0.018 \sin (\theta + 246), \end{aligned}$$

The angle θ counting from the north. These expressions give nearly the same amount (0.016 inches) of elevating and depressing effect of the winds on the average, but do not correspond in the direction; thus, in Baffin Bay, according to the above, the barometer is higher with the wind from the N., N. E., and E., and lower with the wind from the S. W., W., and N. W.; whereas, at Fort Kennedy, where the wind is much subject to local influences, nearly the opposite law would hold good.

The changes in the atmospheric pressure during the more violent storms have already been noticed, and were illustrated with diagrams.



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APPENDIX.

APPENDIX.

RECORD OF THE WEATHER KEPT ON BOARD THE YACHT "FOX," FROM JULY 2, 1857, TO SEPTEMBER 18, 1859; WITH NOTES ON THE SPECIFIC GRAVITY OF SEA WATER, ON THE STATE OF THE ICE, APPEARANCE OF ANIMALS, ETC. ETC.; ON THE AURORA BOREALIS AND ATMOSPHERIC PHENOMENA.

The state of the weather is indicated by the following letters (Beanfort's notation):—

<i>b</i> Blue sky.	<i>p</i> Passing showers.
<i>c</i> Clouds (detached).	<i>g</i> Squally.
<i>d</i> Drizzling rain.	<i>r</i> Rain.
<i>f</i> Foggy.	<i>s</i> Snow.
<i>g</i> Gloomy.	<i>t</i> Thunder.
<i>h</i> Hail.	<i>u</i> Ugly (threatening) appearance.
<i>l</i> Lightning.	<i>v</i> Visibility, objects at a distance unusually visible.
<i>m</i> Misty (hazy).	<i>w</i> Wet (dew).
<i>o</i> Overcast.	<i>x</i> Snow drift.

A bar (—) or a dot (.) under any letter augments its signification.

The sign ("), in the record of the state of the weather, indicates the same entry as that of the hour immediately preceding.

The position of the vessel is given in the preceding record. The specific gravity of sea water was determined by Twaddell's hydrometer, that of distilled water being 1.000. The temperature of sea water and atmospheric pressure have already been stated.

The specific gravity of sea water, in the last column, is given in units of the fourth place of decimals, as indicated by the heading of the table.

For reasons stated by A. Mitchell, A. M., M. D., in the July number, 1860, of the Edinburgh New Philosophical Journal, it has not been deemed advisable to publish the observations for amount of ozone in the atmosphere. It is evident that the amount of discoloration of the papers exposed depends, in a great measure, on the air passed over, and, therefore, presents the combined effect of the quantity of ozone and the strength of the wind.

July, 1857. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.							
DAY.	4h.	5h.	Noon.	4h.	5h.	Midnight.	Specific Grav. of Sea Water, 1.0.
1	b	"	"	"	c	"	—
2	c	"	"	"	"	"	245
3	c	"	"	"	"	"	245
4	c	"	"	"	"	"	247
5	c	"	b c	"	"	"	242
6	c	b c	c	b c	"	"	245
7	b c	"	b	b c	"	"	242
8	c	"	c	"	"	c m p	—
9	p	c m p	c m	m o	"	"	244
10	d m	m o r	c o r	"	c m	b m	245
11	b	m	m o	r	c d	c g	245
12	m a g	b c	"	b c	"	"	240
13	b	"	"	"	"	b c	—
14	b m	f	c m	o	d	c	240
15	r	d	m f	m	b c	f	242
16	m	c d	m o	m	"	f	240
17	d	f	"	"	"	"	—
18	f	"	"	"	c	b c	242
19	b	—	—	g r	"	"	—
20	r	c	b c	m	"	"	—
21	m	"	b m	"	f	"	—
22	f	"	"	"	b	"	242
23	"	"	"	"	"	"	—
24	b	c	"	f	"	b	240
25	b r	"	"	"	g	"	240
26	b	"	b c	"	"	"	240
27	b	g	"	c	o	c	240
28	g	r	"	"	g	"	240
29	o r	r	o	c m	"	"	245
30	b c	"	"	"	"	"	245
31	b c	c	"	"	"	"	245

NOTES TO JULY RECORD.

- 1st. Abetdeen.
 7th. Porpoises going east; a shearwater and two loons seen; fulmar petrels constantly in sight.
 8th. A shearwater, an Arctic tern, and several fulmar petrels seen.
 9th. A whale seen.
 11th. Fulmar petrels constantly in sight.
 13th. Mountains of South Greenland seen; Cape Farewell, N. 66°, W. 74°; fulmar petrels, kittiwake gulls, also strange petrels in sight.
 14th. Fulmar and strange petrels, and kittiwakes in sight; several hours in sight of the ice.
 16th. Loons are not uncommon.
 17th. Sailing through heavy pack ice.
 18th. Sailing through heavy pack ice.
 19th. At noon in harbor of Fredericksaah.
 23d. Anchored at 1^h 50^m P. M. in Fiskeruaas Harbor.
 25th. Horn to off Goodhaah 8 A. M.
 26th. One rorqual seen, mollymawks, and an occasional skua gull.
 27th. Mollymawks as usual.
 28th. A skua gull shot; considerable number seen; one black whale seen. Specific gravity of water in 110 fathoms 1.0275, temperature 31° 5; at surface 1.0215, temperature 37° 0.
 31st. In Lievly Harbor.

August, 1857. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.							
DAY.	4h.	5h.	Noon.	4h.	5h.	Midnight.	Specific Gravity of sea water, 1.0
1	e	"	"	b c	"	c	280
2	e	"	"	a c	e	b c	285
3	f	"	"	b c	e	"	*286
4	b c	e g r	p r g	g r	g g	b r g	285
5	b c	"	"	"	"	"	285
6	e	"	"	"	e o	g	280
7	u r	"	f	b c	"	f	275
8	f	"	a r r	e	e m	c	275
9	b c	"	a r r	e	"	e r	*270
10	e	b c	"	m r	f	"	*268
11	f	b	"	"	"	"	"
12	b	"	"	"	"	"	225
13	b	"	"	b c	"	"	240
14	b c	"	"	"	b	"	230
15	b c	"	"	"	"	"	*240
16	b c	"	"	"	f	"	*250
17	f	"	"	m d	"	e o	260
18	e	m o	e m	"	"	"	260
19	e m	"	"	"	m o	e	*260
20	e m	"	g	e m	m e	e	*260
21	e	"	f	g o	f	m o	*260
22	m o	m	b c	d	"	e	*260
23	e o	"	"	"	c	b e	262
24	b c	b	"	b e	"	"	*260
25	e	"	m r r	m o r	r	d	*262
26	d	b c	"	f	e	e	*261
27	e	e c	c	b c	c	"	*262
28	"	"	"	m o	"	g	*262
29	b c	"	b	"	"	b	*260
30	b c	"	a c g	f	g m o	"	*262
31	a o	"	e	"	"	"	*260

NOTES TO AUGUST RECORD.

- 1st. In Disco Flord; eider docks abundant.
 2d. One black whale and several porpoises seen.
 3d. Off Isong Point; immense flocks of ducks.
 4th. At Rittenbenk.
 5th. A few rotchies seen.
 6th. Off Upernavik; took on board six dogs at Proves, and fourteen at Upernavik.
 7th. Several rotchies seen.
 8th. Sailing amongst loose ice.
 10th. Off the Devil's Thumb.
 12th. Steaming through ice.
 13th. Specific gravity of fresh water on the iceberg, 1.001.
 14th. At midnight (14th to 15th) fast to a berg south of Brown's Island.
 16th. Running through lanes in the pack.
 17th. Running through lanes in the pack and beset.
 18th. Beset in Melville Bay.

¹ Specific gravity of sea water marked with an asterisk (*), taken from the fourth number of Meteorological Papers, published by the Board of Trade. London, 1860. At 8 P. M. at anchor in 7 fathoms water, one-third of a mile off shore; had holding ground; coaling at Rittenbenk.

² The specific gravity of the surface water fell from 1.0270 on the 9th, to 1.0238 on the 10th. The yacht is said to have been off the glacier, and was surrounded by bergs, the fresh water from which probably caused the diminution in the specific gravity at the surface. The specific gravity of the fresh water on a berg was 1.0010.

³ Specific gravity in 114 fathoms 1.025 Temperature 30°·0
 " " 50 " 1.025 " " " " 23·5
 " " 25 " 1.024 " " " " 31·5

⁴ Cape Walker, N. 60° E. (true); Cape Melville, N. 14° W. (true).

- 5th. A black whale seen; sounded in 88 fathoms; yellowish mud; six seals obtained.
 6th. Soundings in 88 fathoms; yellowish mud.
 7th. A *Tringa* shot.
 8th. Soundings in 86 fathoms; same bottom.
 9th. Soundings in 94 fathoms; mud, shells, and stones.
 10th. Soundings in 83½ fathoms; stones and mud.
 11th. Soundings in 83 fathoms; stones and mud.
 12th. Soundings in 80 fathoms; soft mud.
 13th. Strong refraction in N. W.; three ravens, one bargomaster, and one turnstone seen.
 14th. Soundings in 78 fathoms; a sea snipe shot; dry bulb 29°·0, wet 28°·8 at 9 A. M.
 15th. Soundings in 79 fathoms; two ravens, a few snow buntings, and a bargomaster seen.
 16th. Soundings in 69 fathoms; stones.
 17th. Soundings in 94 fathoms; mud.
 18th. Longitude by Jupiter's first satellite 65° 5' W.
 19th. Faint aurora at 2 A. M.; sounded in 114 fathoms; stones and mud.
 21st. No bottom with 120 fathoms; wet bulb 25·5, dry bulb 20·5.
 22d. Sounded in 135 fathoms; mud and sand; two bears seen.
 23d. Sounded in 130 fathoms; soft mud.
 24th. Specific gravity of surface of sea 1.0250, at 29° temperature; two bears seen; faint aurora in the S. E.
 25th. Faint aurora from N. N. W. to S. S. W.; two seals and a glaucous gull seen.
 26th. A raven shot.
 27th. A raven seen; at 2 A. M. a slight aurora in the E. S. E.
 28th. No bottom with 140 fathoms.
 29th. Two bears seen.
 30th. Many shooting stars at midnight (30th to 1st).

October, 1857. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.														
DAY.	2d.	4d.	6d.	8d.	10d.	Noon.	2d.	4d.	6d.	8d.	10d.	Mid'l.		
1	a	a	f	a	a	m o	e	---	s	a	a	a		
2	s	a	a	a	c	a	m o	f	a	a	a	a		
3	f	a	a	a	b c	b c m	a	a	a	a	a	a		
4	b	a	a	c	a	a	b	a	a	a	e	b e		
5	c	a	b e	a	a	a	b	a	a	a	a	a		
6	b	a	a	a	b c	a	c	a	b c	a	b e	a		
7	a	a	a	b m	b c m	a	b c	a	f	a	e	a		
8	b c	a	f	a	c m	m	a	e	a	a	f	e		
9	a	a	a	s	a	a	a	a	e	b e	b	a		
10	b c	a	a	b m	b	a	a	f	a	m	f	a		
11	f	a	a	b m	a	a	b c	a	a	b	m	c m		
12	f	a	b	---	m o	a	c	s	a	a	b m	f		
13	f	m	a	a	a	m o	f	a	m	e s	a	a		
14	s	a	a	a	s m	a	a	b c m	a	b m	m o	a		
15	a	a	a	a	a	a	a	a	a	a	a	a		
16	s	a	a	a	a	a	a	a	m	e	c t	a		
17	a	a	b	b c	e	b c	a	c	a	a	a	a		
18	s	a	a	m	a	m o	m	a	a	a	a	a		
19	m	a	a	a	a	a	a	f	a	a	a	a		
20	s	a	a	a	m	s	a	a	a	a	a	a		
21	f	a	a	a	b c	g m	s	a	a	a	a	a		
22	m	a	a	a	b c	a	a	a	a	a	a	a		
23	m	a	a	a	b c	a	a	a	a	a	b	a		
24	m	a	a	a	s	m	a	a	a	e	b c	a		
25	a	a	b c	a	a	c m	a	a	a	a	a	a		
26	a	a	a	a	b c	a	a	a	a	a	a	a		
27	a	a	a	a	b c	a	a	a	a	b s	a	a		
28	b s	a	a	a	a	a	b c	a	a	a	a	b c		
29	a	a	a	a	a	a	a	a	e	b	a	a		
30	b c	a	a	a	a	a	b c	a	a	a	a	a		
31	a	a	a	a	b c	a	a	a	a	c	a	a		

NOTES TO OCTOBER RECORD.

- 1st. Ice drift N. W.; a ptarmigan caught by the dogs; a flock of eider-ducks and a raven seen.
- 2d. Dusk at 7^h
- 3d. Dawn at 5^h 10^m, dusk at 7^h
- 4th. Dusk at 6^h 30^m; at 11 P. M. an aurora in W. N. W.
- 5th. Dawn at 5^h 30^m, dusk at 6^h 30^m; at midnight longitude by chronometer and Jupiter 65° 45' W.
- 6th. Dawn at 5^h 20^m; tried for soundings with 140 fathoms; dusk at 6^h 30^m
- 7th. Dawn at 5^h 35^m, dusk at 6^h 25^m; two bear tracks near the ship.
- 8th. Dawn at 5^h 35^m, dusk at 6^h 10^m
- 9th. 2 A. M. aurora seen from S. S. E. to E. S. E.; dawn at 5^h 30^m; a raven seen; dusk at 6^h 0^m
- 10th. Dawn at 5^h 35^m, dusk at 5^h 55^m
- 11th. Dawn at 6^h 0^m, dusk at 5^h 10^m
- 12th. Dawn at 5^h 30^m, dusk at 5^h 40^m; a flock of eider-ducks passed to the southward; fox and bear tracks seen; between 8 and 10 P. M. some shooting stars.
- 13th. Dawn at 5^h 35^m, dusk at 5^h 30^m
- 14th. Dawn at 6^h 0^m, dusk at 5^h 50^m; the young ice opened for some miles in length; a slight swell observed.
- 15th.¹ Dawn at 5^h 30^m, dusk at 5^h 30^m
- 16th. Dawn at 6^h 30^m, dusk at 5^h 30^m; seals in the lane of water; tried for soundings with 165 fathoms.
- 17th. Dawn at 6^h 15^m, dusk at 5^h 15^m; high land seen from north to N. E. by E. (true); seals in the lane of water, also narwhals; thickness of young ice one month old, 1 foot 3.8 inches; overlying snow, 2½ inches.
- 18th. Dawn at 6^h 30^m, dusk at 5^h 0^m
- 19th. Dawn at 6^h 45^m, dusk at 4^h 30^m
- 20th. Dawn at 6^h 50^m, dusk at 4^h 25^m
- 21st. Dawn at 6^h 50^m, dusk at 4^h 15^m; distant land bearing E. N. E., true; a large seal seen.
- 22d. Dawn at 6^h 45^m, dusk at 4^h 10^m
- 23d. Dawn at 7^h 50^m, dusk at 4^h 35^m; a fox track near the ship, and a seal seen.
- 24th. Dawn at 7^h 0^m, dusk at 4^h 30^m
- 25th. Dawn at 6^h 35^m, dusk at 4^h 20^m
- 26th. Dawn at 7^h 50^m, dusk at 4^h 15^m; Cape York N. 3° E. (true); Cape Dudley Digges N. 50° E. (true).
- 27th. Dawn at 7^h 0^m, dusk at 4^h 30^m
- 28th. Dawn at 7^h 10^m, dusk at 4^h 15^m; the ice opening and in motion near the ship.
- 29th. Daylight at 7^h 20^m; a lane of water crossing the bows and distant two hundred yards; a long lane on port beam distant one mile, and extending east and west two or three miles; dusk at 4^h
- 30th. Ice movement and pressure all preceding night within two hundred yards of the ship; at 4^h 30^m A. M. slight aurora from S. to S. S. E. (true); dawn at 7^h 15^m, dusk at 4^h 0^m; at 10 P. M. ice in motion.
- 31st. Dawn at 7^h 20^m; wide lane of water, covered with thin bay ice in all directions; dusk at 3^h 40^m; ice in motion and water space increasing.

¹ Thickness of snow falling during three or four weeks, 2½ inches; thickness of ice one month old, 15.8 inches.

November, 1857. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.													
PAT.	2 ^h .	4 ^h .	6 ^h .	8 ^h .	10 ^h .	Noon.	2 ^h .	4 ^h .	6 ^h .	8 ^h .	10 ^h .	Mid ^y .	
1	c	"	"	b c	"	b c m	m s	"	"	"	"	"	b c
2	m	"	"	"	"	"	"	"	"	"	"	"	"
3	b c	b	"	"	"	"	"	"	"	"	"	"	"
4	m	"	"	"	"	"	"	"	"	"	"	"	"
5	"	"	"	"	"	"	"	"	"	"	"	"	"
6	c	"	"	"	"	"	"	"	"	"	"	"	"
7	"	"	"	"	"	"	"	"	"	"	"	"	"
8	"	"	"	"	"	"	"	"	"	"	"	"	"
9	"	"	"	"	"	"	"	"	"	"	"	"	"
10	"	"	"	"	"	"	"	"	"	"	"	"	"
11	"	"	"	"	"	"	"	"	"	"	"	"	"
12	"	"	"	"	"	"	"	"	"	"	"	"	"
13	"	"	"	"	"	"	"	"	"	"	"	"	"
14	"	"	"	"	"	"	"	"	"	"	"	"	"
15	"	"	"	"	"	"	"	"	"	"	"	"	"
16	"	"	"	"	"	"	"	"	"	"	"	"	"
17	"	"	"	"	"	"	"	"	"	"	"	"	"
18	"	"	"	"	"	"	"	"	"	"	"	"	"
19	"	"	"	"	"	"	"	"	"	"	"	"	"
20	"	"	"	"	"	"	"	"	"	"	"	"	"
21	"	"	"	"	"	"	"	"	"	"	"	"	"
22	"	"	"	"	"	"	"	"	"	"	"	"	"
23	"	"	"	"	"	"	"	"	"	"	"	"	"
24	"	"	"	"	"	"	"	"	"	"	"	"	"
25	"	"	"	"	"	"	"	"	"	"	"	"	"
26	"	"	"	"	"	"	"	"	"	"	"	"	"
27	"	"	"	"	"	"	"	"	"	"	"	"	"
28	"	"	"	"	"	"	"	"	"	"	"	"	"
29	"	"	"	"	"	"	"	"	"	"	"	"	"
30	"	"	"	"	"	"	"	"	"	"	"	"	"

NOTES TO NOVEMBER RECORD.

- 1st. Dawn at 7^h 30^m, dusk at 3^h 50^m
 2d. Dawn at 7^h 40^m, dusk at 3^h 30^m; 8 P. M. a bear came to the ship and was shot; length 7 feet 3 inches.
 3d. Dawn at 7^h 30^m, dusk at 3^h 30^m.
 4th. Dawn at 8^h 0^m, dusk at 3^h 15^m.
 5th. Dawn at 7^h 30^m, dusk at 3^h 15^m.
 6th. Dawn at 7^h 45^m, dusk at 3^h 15^m; ice in motion; lanes of water in the S. W. and N. W.; two seals seen.
 7th.¹ Dawn at 7^h 45^m, dusk at 3^h 15^m; lanes of water in all directions; two dovesies shot; slight streak of aurora near horizon in the S. E. after 6 P. M.
 8th. Dawn at 8^h 10^m, dusk at 3^h 0^m; several seals seen; 8 P. M. faint aurora in the W. N. W.
 9th.² Dawn at 8^h 30^m, dusk at 3^h 55^m; ice in motion; opening and closing; several seals seen; at 10 P. M. several shooting stars, and a faint lunar rainbow.
 10th. 2 A. M. faint streaks of aurora from south to west, near horizon; dawn at 8^h 30^m, dusk at 2^h 55^m; several seals seen.

¹ Notices of aurora inclosed within brackets were taken from the fourth number of Meteorological Papers of the Board of Trade.

[7th, midnight. Faint in S. W. (true) horizon, 25' in breadth, and about 25° in extent, of a pale yellow color at times, oscillating and decreasing in extent to 14°; again on following night in N. N. W. horizon.]

² [9th, midnight. In south to east (true) pale yellow to pale green, with rays streaming towards the zenith, about 7° above horizon, and rising apparently just above a bank of fog, which gradually overcame and obscured it. There were no vibrations or scintillations, but at times it appeared broken up in detached pieces. It continued for an hour and a quarter.]

11th.¹ A dovekie seen; two seals shot; dusk at 2^h 50^m; 8 P. M. slight aurora in S. W.; several falling stars.

12th. Dawn at 8^h 20^m, dusk at 2^h 40^m; a dovekie seen; three seals shot.

13th. Dawn at 8^h 45^m, dusk at 2^h 35^m; motion perceptible in the ice; a few seals and a dovekie seen.

14th. Dawn at 8^h 30^m; ice in motion, the old ice crushing up the new ice; dusk at 2^h 23^m.

15th. Dawn at 9^h 45^m; ice moving; several large pools of water; a narwhal and many seals seen, one shot; dusk at 2^h 30^m.

16th. Dawn at 9^h 15^m; a seal shot and a dovekie seen; dusk at 2^h 15^m.

17th. Dawn at 9^h 30^m, dusk at 2^h 0^m.

18th. Dawn at 9^h 35^m, dusk at 2^h 5^m; a few seals and narwhals seen.

19th. Dawn at 9^h 30^m, dusk at 2^h 0^m; two or three seals seen.

20th. Dawn at 9^h 45^m, dusk at 2^h 0^m; one seal seen.

21st. Dawn at 9^h 45^m, dusk at 2^h 15^m.

22d. Dawn at 9^h 50^m, dusk at 1^h 50^m.

23d.² Dawn at 9^h 45^m; one seal seen; 8 P. M. aurora near the horizon in the S. E.; at midnight, aurora from N. W. to S. W. and S. E.

24th. 2 A. M. aurora at the S. E. horizon; dusk at 1^h 45^m.

25th. Dawn at 9^h 50^m, dusk at 1^h 40^m; a small lane of water near the ship; only one seal seen.

26th. Dawn at 9^h 50^m, dusk at 1^h 35^m.

27th. Dawn at 10^h 0^m, dusk at 1^h 50^m.

28th. Dawn at 10^h 5^m, dusk at 1^h 35^m.

29th. Dawn at 10^h 0^m, dusk at 1^h 35^m.

30th. Dawn at 10^h 15^m, dusk at 1^h 10^m.

December, 1857. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.													
DAY.	2 ^h .	4 ^h .	6 ^h .	8 ^h .	10 ^h .	Noon.	2 ^h .	4 ^h .	6 ^h .	8 ^h .	10 ^h .	Mid ⁿ .	
1	b p	"	"	"	"	"	"	"	"	"	"	"	"
2	b p	"	"	"	"	"	"	"	"	"	"	"	"
3	b p	"	"	"	"	"	c p	"	"	"	"	"	b p
4	b p	"	"	"	"	"	"	"	"	"	"	"	"
5	b p	"	"	"	"	"	b p	"	"	"	"	"	"
6	m z	"	c m z	"	c m	"	"	"	"	"	"	"	"
7	c m	"	"	"	"	"	b c	"	"	"	"	"	"
8	b p	b c	c m	"	"	b c	c	c m	"	"	b p	"	"
9	b p	"	"	b c	"	"	"	b p	"	"	"	"	"
10	b	b p	"	"	b c	b	"	"	"	b p	b m	"	"
11	"	"	"	"	b c	"	b c	"	b c	"	"	"	b p
12	"	"	"	"	"	"	"	"	"	"	"	"	"
13	m z	"	c z	"	"	b m z	b m	"	"	"	b p	"	"
14	c	c m	"	"	b	"	"	"	"	"	"	"	"
15	c	"	b	"	b p	"	"	"	"	"	"	"	"
16	"	"	"	"	"	"	"	"	"	"	"	"	"
17	"	"	"	"	"	"	b c	"	"	"	b p	"	b c
18	b c	"	"	"	"	b c	"	"	"	"	"	"	"
19	b p	"	"	"	"	"	b c	b p	"	"	"	"	"
20	"	"	"	"	"	"	"	"	"	"	"	"	"
21	"	c z	m z	"	"	"	"	"	"	"	b p	"	"
22	"	"	"	"	"	"	"	"	"	"	"	"	"
23	"	"	"	"	"	"	"	"	"	"	"	"	"
24	"	"	"	"	"	"	"	"	"	"	"	"	"
25	"	"	"	"	"	"	"	"	"	"	"	"	"
26	b p	"	"	"	b c	"	"	"	"	"	"	"	"
27	"	"	"	"	"	"	"	"	"	"	"	"	"
28	"	"	"	"	"	"	"	"	"	"	"	"	"
29	m z	c z	m z	"	"	"	"	"	"	"	"	"	"
30	"	"	b p	"	"	"	"	"	"	"	"	"	"
31	b p	b p	b	"	b p	b c	"	b p	"	"	"	"	"

¹ [11th, midnight. Slight in S. E. (true).]

² [23d, midnight. Very bright till 2 A. M. in N. W. to S. E. (true).]

[On the 16th, thickness of ice 2 feet $\frac{1}{2}$ inch; increase since last month, 6 inches.—B. of T. Papers.]

NOTES TO DECEMBER RECORD.

- 1st. Dawn at 10^h 30^m, dusk at 1^h 5^m; ice crushing up at the edges of the floe.
- 2d. Dawn at 10^h 30^m, dusk at 1^h 10^m.
- 3d. Dawn at 10^h 30^m, dusk at 1^h 0^m.
- 4th. Dawn at 11^h 0^m; a well-marked halo and several parhelic arcs, 1^h to 10^h P. M., consisting of five false moons, three arcs of halos, and a horizontal belt of light round the heaven and passing through the moon.
- 5th. Dawn at 10^h 30^m, dusk at 0^h 50^m.
- 6th. Unable to read by light of the sky.
- 7th. Dawn at 11^h 0^m; several cracks near the ship; one seal seen.
- 8th. Dawn at 11^h 0^m; dusk at 0^h 30^m; the cracks nearly closed.
- 9th. Dawn at 11^h 5^m; dusk at 0^h 45^m; midnight (9th to 10th), aurora from E. N. E. to E. S. E. (true), also several shooting stars.
- 10th. Dawn at 11^h 0^m, dusk at 1^h 30^m; 9 P. M., faint aurora in the south, streaming towards the zenith.
- 11th. Dawn at 11^h 30^m, dusk at 0^h 30^m.
- 12th. Dawn at 11^h 15^m, dusk at 0^h 30^m; [2 A. M., slight aurora to southward;] 10 P. M., faint aurora in N. W.
- 13th. Dawn at 11^h 0^m, dusk at 0^h 50^m; 6 P. M., bright aurora in S. E.; 10 P. M., aurora from the S. E. to N. E. (part of an arc), with rays shooting up towards the zenith.
- 14th. 2 A. M., faint aurora towards the southern horizon; dawn at 11^h 10^m, dusk at 0^h 15^m; found a perceptible divergence in the gold leaves of an electrometer when attached to a masthead wire and passed down to the sea; 8 P. M., faint aurora in the N. E. (true).
- 15th. Dawn at 11^h 10^m, dusk at 0^h 30^m; several shooting stars between 5 and 6 P. M.; midnight (15th to 16th), faint aurora to southward. [Thickness of ice 3 feet 0 inches; increase since last month 11 inches.—*B. of T. Papers.*]
- 16th. No daylight. [6 P. M., aurora slight from E. to N. E., and at 10 P. M. bright from S. to N. E., continuing till 10 A. M. next day, at 6 P. M. again for one hour, across the zenith from E. to W. and N. W.; the electrometer was sensibly affected.]
- 17th. Dawn at 11^h 30^m, dusk at 0^h 30^m; 6 P. M., slight aurora E. to N., 10 P. M., bright aurora S. to N. E.
- 18th. Thickness of September ice 3 feet 0 inches, overlying closely packed snow 6½ inches; 4 A. M. aurora still visible, 9^h 45^m A. M. aurora disappeared; dawn at 11^h 15^m, dusk at 0^h 30^m; 4 P. M., faint aurora from E. to W. and N. W., passed through the zenith; 10 P. M., aurora S. S. E. to S. S. W., near horizon.
- 19th. Dawn at 11^h 45^m, dusk at 0^h 35^m; a wide crack, N. W. and S. E., half a mile from the ship.
- 20th. No daylight.
- 21st. Daylight at 11^h 45^m, dusk at 0^h 15^m.
- 22d. No daylight.
- 23d. No daylight.
- 24th. Dawn at 11^h 45^m, dusk at 0^h 20^m; narrow lane of water recently opened to the S. W. and N. W. of the ship, and distant from one-quarter to one mile.
- 25th, 26th, 27th. No daylight.
- 28th. Dawn at 11^h 25^m, dusk at 0^h 45^m.
- 29th. Dawn at 11^h 0^m, dusk at 11^h 45^m; small lanes of water, and several fresh cracks near the ship.
- 30th. Dawn at 11^h 15^m, dusk at 0^h 45^m.
- 31st. Dawn at 10^h 30^m, dusk at 0^h 50^m. [No birds seen and only one seal.—*B. of T. Papers.*]



¹ Hard packed snow 6½ inches thick.

January, 1858. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.											
DAY.	2 ^d .	4 ^d .	6 ^d .	8 ^d .	10 ^d .	Noon.	2 ^d .	4 ^d .	6 ^d .	10 ^d .	Mid'l.
1	b c	"	"	"	"	"	"	"	"	"	b
2	b c	"	"	"	b c	"	"	"	b c	"	"
3	b c	"	"	"	b c	"	"	"	"	"	"
4	b c	"	"	"	"	"	"	"	"	"	"
5	m c	"	"	m c	"	"	m c	"	b c	"	b c
6	m c	b	b c	b c	b	b c	b c	"	"	"	b c
7	b c	"	"	"	"	"	"	"	"	"	"
8	m c	"	"	"	"	"	"	"	"	"	"
9	m c	"	"	"	b c	b c	"	"	"	"	"
10	b c	"	"	"	"	"	"	"	"	"	"
11	"	"	m c	"	"	b c	"	"	"	"	"
12	"	"	"	"	m c	"	"	"	"	"	"
13	"	"	"	b c	"	"	"	"	"	"	"
14	b c	"	"	b c	b c	"	"	"	"	"	"
15	m c	"	"	"	"	"	"	"	"	"	"
16	m c	"	"	"	"	"	"	"	"	"	"
17	m c	"	"	"	"	"	"	"	"	"	"
18	b c	"	"	"	b c	"	"	"	"	"	"
19	b c	"	"	"	"	"	"	"	"	"	"
20	m c	"	"	"	"	"	"	"	"	"	"
21	"	"	"	"	"	m c	"	"	"	"	"
22	"	"	"	b c	"	"	"	"	"	"	"
23	m c	"	m c	"	"	"	"	"	"	"	"
24	b c	"	"	"	"	"	"	"	"	"	"
25	"	"	"	"	"	"	"	"	"	"	"
26	"	"	"	m c	"	"	"	"	"	"	"
27	m c	"	"	"	b c	"	"	"	"	"	"
28	"	"	"	"	"	"	"	"	"	"	"
29	b c	"	"	"	"	"	"	"	"	"	"
30	"	"	"	"	"	"	"	"	"	"	"
31	b c	"	b c	b c	b c	"	"	"	"	"	"

NOTES TO JANUARY RECORD.

- 1st. Dawn at 10^h 45^m, dusk at 1^h 0^m; temperature in snow-bur -16°.
- 2d. Dawn at 10^h 30^m, dusk at 1^h 30^m.
- 3d. Dawn at 11^h 10^m.
- 4th. Dawn at 11^h 10^m, dusk at 0^h 35^m.
- 5th. Dawn at 11^h 15^m, dusk at 1^h 15^m; a lane of water in the west extending N. E. and S. W. (true); one seal seen.
- 6th. Dawn at 10^h 45^m, dusk at 1^h 15^m.
- 7th. Dawn at 10^h 45^m, dusk at 1^h 30^m.
- 8th. Dawn at 10^h 25^m, dusk at 1^h 30^m.
- 9th. Dawn at 10^h 15^m; at 8 P. M. bright aurora from west to east (magnetic) passing through west; 10 P. M., slight aurora occasionally visible round the horizon; 11 P. M., same.
- 10th. Dawn at 10^h 5^m, dusk at 1^h 15^m.
- 11th. Dawn at 10^h 30^m, dusk at 2^h 30^m; aurora near the S. W. horizon at 9 P. M.
- 12th. Dawn at 10^h 30^m, dusk at 1^h 45^m; at 8 P. M. a patch of aurora 8° above horizon S. by E. (true).
- 13th. Dawn at 9^h 50^m, dusk at 2^h 10^m.
- 14th. Daylight at 9^h 40^m, dusk at 2^h 5^m.
- 15th. Dawn at 10^h 15^m, dusk at 2^h 10^m.
- 16th. Dawn at 10^h 6^m, dusk at 2^h 0^m.
- 17th. Dawn at 9^h 50^m, dusk at 2^h 30^m; a bear supposed to have alarmed the dogs; 8 P. M., aurora near horizon being S. and E. from 8 until midnight.
- 18th. Dawn at 9^h 15^m, dusk at 2^h 40^m.
- 19th. Dawn at 9^h 40^m, dusk at 2^h 45^m.
- 20th. Dawn at 9^h 30^m, dusk at 2^h 45^m; temperature in snow-bur, 6 hours after it was built, 7° above the external temperature; these huts were built by 8 men in 45 minutes.

- 21st. Dawn at 9^h 30^m, dusk at 3^h 0^m.
 22d. Dawn at 9^h 10^m, dusk at 3^h 15^m; much refraction in the S. E.
 23d. Dawn at 9^h 30^m, dusk at 3^h 0^m.
 24th. Dawn at 9^h 0^m, dusk at 3^h 15^m.
 25th. Dawn at 9^h 0^m, dusk at 3^h 15^m; a halo round the moon at 7^h P. M.
 26th. Dawn at 9^h 0^m, dusk at 3^h 30^m.
 27th. Dawn at 9^h 45^m, dusk at 3^h 20^m.
 28th. Dawn at 9^h 25^m; sun's upper limb appeared at 11^h 25^m; refraction 59' 55'', neglecting the height of the eye (5 feet); sun's upper limb disappeared at 1^h 0^m m. t.; dusk at 3^h 45^m.
 29th. Dawn at 8^h 15^m; sun's upper limb appeared at 11^h 10^m m. t., disappeared 1^h 25^m; dusk at 3^h 45^m; 10 men built two houses in 30 minutes; mercury froze at about -41°.
 30th. Dawn at 8^h 30^m; sun's upper limb appeared at 10^h 30^m, disappeared at 1^h 50^m; dusk at 3^h 50^m. two seals and a dovekie seen in a large crack three or four miles east of the ship.
 31st. Dawn at 8^h 15^m; sun's upper limb appeared at 10^h 40^m; a seal and several dovekies seen in a lane of water; sun's upper limb disappeared at 2^h 0^m; dusk at 4^h 0^m.

February, 1858. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.													
DAY.	2 ^h .	4 ^h .	6 ^h .	8 ^h .	10 ^h .	Noon.	2 ^h .	4 ^h .	6 ^h .	8 ^h .	10 ^h .	Mid'y.	
1	b c	"	"	"	"	b c	b c	b c	"	"	"	"	
2	b c	"	"	"	"	"	"	"	"	"	"	"	
3	b c	"	"	"	"	"	"	"	"	"	"	"	
4	b m	"	"	b c	"	"	"	"	"	"	"	"	
5	b c	"	"	"	"	"	"	"	"	"	"	"	
6	"	"	"	"	"	"	"	"	"	"	"	"	
7	b c	"	"	b c	"	"	"	"	"	"	"	"	
8	"	"	"	"	"	"	"	"	"	"	"	"	
9	b m	"	"	"	"	"	b c z	b m z	"	"	"	b c z	
10	b m z	"	"	"	"	"	c m z	"	"	"	"	c m z	
11	"	c m	b c z	b c	b c z	b c	"	"	"	c m z	"	"	
12	c m z	"	"	"	"	"	"	"	"	"	"	"	
13	b m	"	"	"	"	"	"	"	"	"	"	"	
14	b z	"	"	"	"	"	b c z	"	"	"	"	"	
15	b c z	"	"	"	"	"	b c z	"	"	"	"	"	
16	b c	b c z	"	"	"	"	"	"	"	"	"	"	
17	b z	"	"	b c z	"	"	"	"	"	"	"	"	
18	b c z	"	"	"	"	"	b c z	"	"	"	"	"	
19	m z	b c z	"	"	"	"	"	"	"	"	"	"	
20	b c	"	"	"	"	"	"	"	"	"	"	"	
21	m z z	"	"	"	"	"	c p	b c	"	"	"	"	
22	b c	"	"	"	"	"	"	"	"	"	"	"	
23	b c z	"	"	"	"	"	"	"	"	"	"	"	
24	b c z	"	"	"	"	"	"	"	"	"	"	"	
25	c m z	"	"	"	"	"	c m z	"	"	"	"	"	
26	c m z	"	"	"	"	"	"	"	"	"	"	"	
27	b c	"	"	"	"	"	"	"	"	"	"	"	
28	m z	m z z	"	"	"	"	"	"	"	"	"	"	

NOTES TO FEBRUARY RECORD.

1st. Dawn at 8^h 0^m; sun's upper limb appeared at 10^h 25^m m. t.; a sooty fox shot, small and fat, weight 7 lbs.; sunset at 2^h 5^m, dusk at 4^h 10^m.

2d. Dawn at 8^h 0^m; sun's upper limb appeared at 10^h 10^m; no sounding with 170 fathoms; several new cracks; cirro-stratus moving to S. E.; dusk at 4^h 10^m; 9 P. M. aurors faint in the S. E. horizon for about ten minutes; 10 P. M. an auroral arch in the S. E., visible for one hour, faint from S. E. to E. N. E., the extremities of the arch touching the horizon; the S. E. extremity was the brightest, with an occasional stream towards the zenith.

5d. Dawn at 7^h 50^m; sun's upper limb appeared at 10^h 5^m; dusk at 4^h 20^m; at 11 P. M. an arch of an aurora from S. E. (true) horizon to the zenith; ice in motion.

4th. Dawn at 7^h 50^m; the ice has opened in several places; some seals and dovesies seen; dusk at 4^h 30^m; 8 until 12 P. M. ice in motion near the ship.

5th. Dawn at 7^h 50^m; sun's upper limb appeared at 10^h 5^m m. L.; six dovesies shot, a few seals seen; at 2 P. M. the floe cracked ten yards astern of the ship, many cracks running N. E. and S. W., and considerable motion in the ice; built snow hats in 40^m.

6th. Dawn at 7^h 45^m, dusk at 4^h 20^m; 11 P. M. a slight aurora in the N. E. [Thickness of old floe ice 4 feet 6 inches.]

7th. Dawn at 7^h 30^m; sun's upper limb disappeared at 9^h 40^m; dusk at 4^h 30^m; 11^h 15^m P. M. until midnight pale streaks and patches of aurora near horizon between S. S. E. and north (true).

8th. Dawn at 7^h 30^m, dusk at 4^h 40^m.

9th. Dawn at 7^h 25^m, dusk at 4^h 40^m; at 11 A. M. a faint parabola; 10 P. M. aurora from N. E. to S. E.

10th. 2 A. M. slight aurora from N. to S., passing through the zenith; dawn at 7^h 20^m, dusk at 4^h 45^m.

11th. Dawn at 7^h 20^m, dusk at 4^h 50^m; a broad line of water one mile astern of the ship running E. N. E. and W. S. W.

12th. Dawn at 7^h 20^m, dusk at 5^h 0^m.

13th. 4 A. M. a slight aurora in the west; dawn at 7^h 15^m; prismatic halo round the sun; several seals seen; dusk at 5^h 10^m; 11 P. M. aurora near horizon between S. S. E. and E., with vertical rays or streamers half way up to the zenith, arch about 14° above the horizon.

14th. Dawn at 7^h 5^m; two dovesies seen; 1^h 30^m P. M. an ill-defined halo about 18° diameter, its extremities at the horizon prismatic; ice opening in a lane two miles N. W. from ship; dusk at 5^h 20^m.

15th. Dawn 7^h 20^m; an imperfect double halo around the sun, diameter about 15° and 36°; dusk at 5^h 30^m; 7^h to 9^h P. M. pale aurora near horizon between S. S. E. and E. N. E., with vertical rays towards the zenith, arch 4° above horizon.

16th. Dawn 6^h 50^m; an imperfect halo slightly prismatic; dusk at 5^h 20^m; at 8 P. M. bright, pale yellow aurora along the horizon between S. E. and N. N. E., with vertical streamers towards zenith, forming at times an arc, double and even treble, from 6° to 8° above horizon.

17th. Aurora not seen until 2 A. M., when it disappeared; thickness of ice 3 feet 9 inches, of snow 9 inches; dawn at 6^h 45^m; at noon imperfect prismatic halo, diameter 45°, luminous spots at horizon 45° E. and W. of the sun; several seals seen; dusk at 5^h 20^m; halo round the moon, diameter 46°; 10 P. M. aurora near the south horizon, arc from S. S. W. to N. N. E. about 4° above horizon.

18th. Midnight until 4 A. M. aurora between S. W. and E.; dawn at 6^h 50^m, dusk at 5^h 20^m; 8^h 30^m P. M. auroral arch about 15° above horizon, between S. S. E. and E.; 10 P. M. aurora ceased.

19th. Dawn at 6^h 40^m, dusk at 5^h 35^m; at midnight (19th—20th) arch of aurora 9° above horizon, between S. S. E. and N. E.

20th. Dawn at 6^h 40^m; a wide lane of water two miles north from the ship, and extending E. N. E. and W. S. W., the terminations not visible; 6 P. M. prismatic halo round the moon, diameter 40° 20'.

21st. Dawn at 6^h 30^m, dusk at 5^h 30^m.

22d. Dawn at 6^h 30^m; tried for soundings with 160 fathoms; several seals and dovesies seen in wide lane to the north of the ship, also a bear; dusk at 5^h 40^m; at midnight (22d—23d) halo round the moon.

23d. Dawn at 6^h 15^m, dusk at 5^h 0^m.

24th. Dawn at 6^h 10^m, dusk at 5^h 0^m.

25th. Dawn at 6^h 0^m, dusk at 4^h 0^m.

26th. Dawn at 6^h 0^m, dusk at 6^h 10^m.

27th. Dawn at 5^h 55^m dusk at 6^h 15^m; snow melted against ship's side in the sun at 9 A. M., temperature in shade —22°, a seal shot; dovesies seen; at noon black bulb thermometer —7°, in shade —17°.5.

28th. Dawn at 6^h 0^m; no water in sight; dusk at 6^h 15^m; midnight (28th—1st) halo round the moon, diameter 43°; altitude of moon 19½°.

March, 1858. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.

DAY.	1 st .	2 ^d .	3 ^d .	4 th .	5 th .	6 th .	Noon.	7 th .	8 th .	9 th .	10 th .	11 th .	12 th .
1	a	"	co	"	bc	"	"	"	u	u	bc	"	"
2	ca	bc	ca	"	co	"	"	bc	"	co	u	"	"
3	bc	"	"	"	co	"	"	"	co	u	u	"	"
4	u	bc	u	"	u	bc	"	bc	"	"	u	"	"
5	bc	"	"	"	"	bc	"	"	"	"	u	"	"
6	bc	"	"	"	"	"	"	bc	"	"	"	"	"
7	bc	"	"	"	bc	bc	"	bc	"	bc	bc	bc	"
8	bc	"	"	"	"	"	"	"	"	"	"	"	"
9	bc	"	"	"	co	"	bc	"	"	"	"	"	"
10	"	bc	"	"	"	"	co	"	"	"	"	"	"
11	u	"	"	"	u	"	"	co	bc	"	"	"	"
12	bc	co	bc	co	u	co	co	co	"	"	"	"	"
13	u	"	"	"	bc	"	"	"	"	"	"	"	"
14	bc	"	bc	"	"	"	"	"	"	"	"	"	"
15	bc	"	"	"	"	bc	"	"	"	"	"	"	"
16	bc	"	bc	"	"	"	"	"	"	"	"	"	"
17	bc	"	"	"	"	"	bc	"	"	bc	bc	bc	"
18	bc	"	"	"	"	"	"	"	"	"	"	"	"
19	bc	"	"	"	"	"	"	"	"	"	"	"	"
20	bc	"	"	fs	"	f	"	bc	"	"	"	"	"
21	"	bc	"	"	"	"	"	"	"	"	"	"	"
22	f	co	"	"	"	"	"	f	fs	fs	fs	"	"
23	u	"	"	"	"	"	"	"	"	"	"	"	"
24	"	"	co	"	co	"	"	bc	"	"	"	"	"
25	bc	"	"	"	co	bc	"	"	"	"	"	"	"
26	ca	"	bc	"	"	"	"	"	"	"	"	"	"
27	bc	"	"	"	"	"	"	"	"	"	"	"	"
28	bc	bc	"	bc	"	"	"	"	"	"	"	"	"
29	"	bc	bc	"	bc	"	"	"	"	"	"	"	"
30	co	"	"	"	"	"	"	"	"	"	"	"	"
31	bc	"	"	bc	"	"	"	"	bc	bc	"	"	"

NOTES TO MARCH RECORD.

1st. Noon tried for soundings with 180 fathoms.

2d. A large lane of water opened E. N. E. and W. S. W. about one mile south of the ship; several seals seen and four shot; aurora visible between S. W. by S. and east from 10.30 P. M. until 2nd 30^m. A. M. (3d) [patches, arches and streamers].

3d. Several lanes and cracks in the ice north of the ship, in which some narwhals and dovesies and several seals were seen; hail fell from 10 P. M. until 11.

4th. 10 P. M. Auroral arch in the N. E. at a low altitude. [A broad arch reaching nearly to the zenith.]

5th. At noon, black bulb thermometer in the sun zero, temperature in shade, -10° ; at 2 P. M. the ice suddenly detached itself from the ship's bows and sides allowing her to rise seven inches forward. 9 P. M. Aurora in clouds and streamers between N. W. and S., visible throughout the night; the sound of crushing or cracking ice distinctly heard during the night.

6th. 8 P. M., bright aurora between S. S. W. and E. from 8° to 50° above horizon, ceased at 10th 30^m. [Bands and arches with streamers towards the south.]

7th. 6 A. M., appearance of high land supposed to be Disco bearing east (true); from 11 A. M. until 2 P. M. a double prismatic halo (red external) about the sun, diameters 45° and 90° nearly; occasional parhelia or inner halo in same altitude as the sun; a portion of inverted arch above outer halo; sun's altitude 16° .

8th. At daylight appearance of land bearing E. by N.; a lane of water northwest of the ship in which seals and narwhals were seen; 10 P. M., faint aurora in S. E.

9th. A bear passed near the ship; many seals, some dovesies, and a black whale seen.

10th. Two small seals shot and some narwhals seen; several lanes and pools of water in the northward.

11th. Ice much broken up, also lanes and small pools of water northward of the ship.



- 12th. Water in lanes and pools in sight all around; a slight swell perceptible in the lanes and cracks.
- 13th. A seal shot.
- 14th. Several small lanes and pools to the northward.
- 15th. At 10^h 30^m P. M. a bank of aurora between S. and S. E. (true) about 8° elevation, with occasional vertical streamers ascending.
- 16th. Ice 4 feet 3½ inches thick, increase for the month 6½ inches; snow 9½ inches, no increase; ice opened 120 yards west of the ship and a wide lane of water formed, extending N. and S.; its extremes not visible; 8 P. M., aurora from S. W. to N. E. near the horizon and with vertical streamers [lasted till midnight].
- 17th. Several seals seen, three dovekies shot; the ice much broken up and wide lanes of water running N. and S.; 10 P. M., bright aurora between S. W. and E. N. E.
- 18th. A seal shot; the ice closing; the tracks of three bears seen; 4^h 30^m P. M. ice crashing up with great force, that in which the ship is frozen appears setting southward of the western ice; 11 P. M., aurora between S. with E. N. E. [40° above horizon with streamers towards zenith]; the ice opening.
- 19th. Several seals and dovekies seen; at noon, a faint halo with parhelia; 6 P. M. ice in motion, afterwards stationary.
- 20th. Sounded in 150 fathoms, soft mud.
- 21st. Noon, the lane opened to the westward of the ship.
- 22d. A seal shot; six dovekies shot; 10^h 30^m P. M., the ice detached itself from the ship and she heeled over to the gale.
- 23d. A seal and a dovekie shot; a large pool of water 68 yards west of the ship; much water in sight to the southward; many narwhals seen swimming northward.
- 24th. The ice apparently drifting southward and opening in different directions; 10 P. M., ice in motion and pressing against the floe edge 70 yards west of the ship.
- 25th. 1^h 45^m A. M., ice slackened off and the crack opened; from 6 until 8 P. M. the ice in motion and crushing up with great pressure in the crack W. of the ship.
- 26th. 9 P. M., halo around the moon, diameter about 44°; altitude moon's centre 28°; slight motion in the ice.
- 27th. 8 P. M., ice opened in lane W. 50 yards from ship.
- 28th. 8 A. M., got bottom with 180 fathoms, mud, supposed depth 170 fathoms.
- 29th. Two seals and two dovekies shot; 11 P. M., Paraselema on each side and above the moon, distant about 23°, moon's altitude 11°.
- 31st. Three seals shot; a fresh bear track close to the ship.

April, 1858. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.													
DAY.	2h.	4h.	6h.	8h.	10h.	Noon.	2h.	4h.	6h.	8h.	10h.	Midn.	
1	b c	"	"	"	b	"	"	"	"	"	"	"	
2	b	"	"	"	b c	"	"	"	"	"	"	"	
3	b c	"	b c s	c m s	b m s	"	m s	"	c m s	"	m s	"	
4	q m s	"	m s	"	"	"	q m s	"	"	"	"	"	
5	q m s	"	"	"	"	"	"	"	"	m s	"	"	
6	m s	"	m s	"	b c	"	"	"	"	"	"	"	
7	c	b c	m s	"	"	m	b c	c m s	m s	"	m s	"	
8	m s	"	"	"	q m s	"	"	"	"	"	"	"	
9	b	b c	b	b c	"	"	"	"	"	"	"	"	
10	b c	"	"	"	"	"	"	"	"	"	"	"	
11	b c	"	"	"	"	"	"	"	"	"	"	"	
12	b c	"	"	"	"	"	"	"	"	"	"	"	
13	b c	"	"	"	"	"	"	"	"	"	"	"	
14	b c	"	"	"	"	"	"	"	"	"	"	"	
15	b c	"	"	"	"	"	"	"	"	"	"	"	
16	b c s	"	"	"	"	b s	b c s	"	"	"	"	"	
17	b s	"	"	"	"	"	"	"	b c q	"	"	"	
18	---	b m s	---	b q s	---	"	---	---	c s s	---	"	"	
19	---	m s	---	"	---	"	---	m s	---	b c	---	b c m	
20	---	b c	---	"	---	"	---	"	---	"	---	"	
21	---	b c	---	"	---	"	---	"	---	b p	---	"	
22	---	b p	---	"	---	"	---	"	---	"	---	"	
23	---	b c	---	b p	---	"	---	b m	---	"	---	c s	
24	---	c	---	c s	---	"	---	m s	---	"	---	c s	
25	---	b c	---	c s	---	b s	---	"	---	c s	---	"	
26	---	b m	---	"	---	"	---	"	---	"	---	"	
27	---	c	---	"	---	"	---	c s	---	m s	---	"	
28	---	c	---	"	---	"	---	"	---	m s	---	"	
29	---	b c	---	b	---	"	---	b c	---	"	---	c s	
30	---	s	---	c s	---	"	---	"	---	m s	---	m s	

NOTES TO APRIL RECORD.

1st. A wide lane opening two miles N. E. of the ship; 9 P. M. a streak of aurora 8° above horizon between S. E. and S. W., with streamers towards the zenith.

2d. Two black whales seen.

4th. At noon our old floe cracked in a N. N. E. and S. S. W. line about thirty yards from the ship; it widened to about sixty yards.

5th. At 2^h 30^m the old floe cracked in line with ship, that on the port side drifted off about fifty yards; secured ship to fast lee, head to wind.

6th. A whale and many narwhals seen; four seals shot.

7th. Tried for soundings with 170 fathoms.

8th. Ice quiet, but drifting rapidly before the wind.

9th. A walrus seen; before sunset the western land became visible, supposed Cape Dyer, S. 88° W. (true); 11 P. M. aurora between E. and N., and from 10° elevation stretching up to the zenith.

10th. A large iceberg bearing E. (true); tried for soundings with 180 fathoms; Cape Dyer visible S. 89° W.; another cape S. 83° W.; midnight faint aurora from S. to E. (true).

11th. A bear's track within eighty yards of the ship; a fog bank in S. E.; 9 to 12 P. M. a pale aurora between E. and S. E.

12th. A lane of water opened astern in the direction of a large berg in the E. N. E.; much mist and vapor in the S. E.; eight doves shot; 11 P. M. aurora to the southward between E. and W. S. W. [about 15° above horizon, with streamers towards zenith, and numerous nebular spots of light at intervals in arch].

13th. 6 P. M. distant land seen bearing S. W. $\frac{1}{2}$ W. (true); 11 P. M. aurora similar to last night.

14th. A large flock of ducks flying N. W.; tried for soundings with 170 fathoms; 10 P. M. a bright aurora in the east (true); midnight, faint to the southward at 18° elevation.

15th. 1^h 30^m. A. M. a bear came close to the ship; thickness of ice 3 feet 11 inches, decrease for the month 1 foot 2½ inches; snow 10½ inches, increase 1½; a number of mollymanks seen; 10^h 30^m P. M. aurora to the southward, appearing over a fog bank [afterwards forming an arch from E. to S., disappeared at midnight].

- 16th. At 3 P. M. ice cracked and opened alongside; secured ship by the stern with three hawsers.
- 17th. Pieces of ice began to break off, and at 11 A. M. the ship went adrift with them; 3 P. M. shipped rudder and stood to the eastward under double reefed mainsail and flying staysail.
- 18th. The ice closed about the ship at 3 A. M.; sledge and bay ice only visible; several bergs in sight; at 6 P. M. ship fast in young ice; many mollymawks about, and a snow bunting seen.
- 19th. Three bears seen; several bergs in sight.
- 20th. A considerable swell; unshipped rudder at 3 A. M.; the lofty clouds going to the westward at P. M.; a bear and a seal killed; several small bergs in sight.
- 21st. Tried for soundings with 170 fathoms.
- 22d. Many small bergs near; they change rapidly their bearings, as if the ship and pack were drifting past them to the S. W.; experienced a S. W. current.
- 23d. A large black whale seen, also a seal; experienced a westerly set; several large seals lying on the ice.
- 24th. 8 P. M. a swell from the S. E., and ice commenced to break up.
- 25th. Swell rapidly increasing; ice striking against the ship; proceeded under sail and steam to the eastward; noon, swell ten feet high; ship receiving very violent and frequent shocks, and proceeding, head to swell, through close heavy ice; 6 P. M. swell thirteen feet high, ice less close, shocks still more violent; 8 P. M. cleared the ice, stopped engine, and made sail.
- 26th. Mollymawks and kittiwakes abundant.
- 27th. 7 A. M. saw the land about Sukkertoppen N. E. by N. (true).
- 28th. Anchored at Holsteinberg at 7^h 36^m. P. M. in seventeen fathoms water, moored with hawsers to the rocks.
- 29th and 30th. In the harbor of Holsteinberg.
- [Specific gravity of sea-water:—
- On the 7th, in 110 fathoms, 1.0235 (temp. 34°); in 5 fathoms, 1.0275 (temp. 30°).
- " 10th, " 120 " 1.0290 " 34°; " 4 " 1.0275 " 30°.
- " 14th, " 110 " 1.0310 " 31°; " 4 " 1.0273 " 30.5°.
- " 21st, " 110 " 1.0280 " 31.5°.]

May, 1858. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.						
DAY.	4h.	5h.	Noon.	4h.	5h.	Midnight.
1	m s s	"	"	"	"	c o
2	c	"	b c	"	"	"
3	b c	"	"	"	"	"
4	"	c	m s	"	"	"
5	m s s	"	"	b c	"	"
6	m s	b c	"	"	"	"
7	m s	"	"	"	"	"
8	b c	"	c o s	c	c m	"
9	c m	"	b c	m s	c m s	"
10	b c	b m	b m s	m s	m s s	"
11	m s s	m s	b c m	b c	"	c
12	b c	"	m s	c o	"	"
13	b c	"	"	"	"	"
14	b	"	"	"	"	"
15	b	b f	"	"	b f	b m
16	b	"	f	"	"	"
17	f s	"	b m	"	f	b
18	f	b m	b c	"	"	"
19	f	"	b m	"	"	"
20	b m	"	"	"	"	"
21	b	"	"	b c	"	"
22	b c	"	c o	"	b c	"
23	b	b c	"	"	"	b c
24	b c	"	"	b f	"	"
25	b	"	"	b c	"	c o
26	c o	"	b c	"	"	b
27	c	b c	"	"	"	"
28	b	"	"	"	"	"
29	b c	"	"	b c	"	b m
30	f	"	"	"	b m	f
31	m s	"	"	c o	"	c

NOTES TO MAY RECORD.

- 1st. At Holsteinburg.
 8th. Sailed from Holsteinburg at 7^h A. M.
 9th. Much ice about; white whale seen; specific gravity of sea water, surface, 1.0270.
 10th. Midnight (9th—10th) off Northstrom Fiord; icebergs and ice about; noon, off Riksal; at 7^h 15^m, when 8 miles from Godhavn, stopped by ice extending in to the land; thick fog and snow came on; very narrowly escaped running on the N. W. of the Whalefish Islands. [Passed more than 500 bergs.]
 11th. Anchored at Whalefish Islands in 12 $\frac{1}{2}$ fathoms.
 15th. 6 P. M., prismatic halo around sun about 45° diameter, two lateral parhelia, some polarization; also an arch 15° above horizon, apparently of a circle of same diameter as halo, opposite the sun.
 16th. Godhavn Harbor and entrance filled with packed ice.
 17th. 7^h 30^m P. M., anchored in Upernavik, Black Bay, in 16 $\frac{1}{2}$ fathoms.
 24th. Left Upernavik, and steamed to Godhavn.
 25th. Stramed out of Godhavn at 4^h 30^m A. M.
 26th. 6 A. M., entered the Waigat; 4^h 30^m, anchored off the coal seam in 7 fathoms; one-third of a mile off shore.
 27th. Proceeded under steam northward at 11^h 50^m P. M.
 28th. Passed out of the Waigat, steering for Black Hook.
 29th. At 5^h 30^m P. M. off Black Hook, Sanderson's Hope ahead; many bergs in sight.
 31st. 7 A. M., bore to off Sanderson's Hope; 10^h 30^m A. M., bore up for Upernavik.

June, 1858. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.							
DAY.	4 ^h .	8 ^h .	Noon.	4 ^h .	8 ^h .	Midnight.	Specific Gravity of Sea Water, 10.
1	b c	c o	c	b c	"	"	
2	b c	"	"	"	"	"	
3	c	c o	"	"	b c	"	
4	b	b c	"	"	c m o	m m s	
5	m o s	c o	c	c o	c	"	
6	b c	"	m s	c	c o	"	
7	b c	c	c o	b c	b	b s	
8	b c	b	"	b c	"	"	
9	b	"	b s	b c	"	"	
10	b	f	"	"	f s	"	
11	f s	"	"	b m	"	"	
12	c	c f	c m	"	f	b c	
13	f	"	"	"	b c f	"	
14	b c	b	"	"	b c	"	
15	c	b c	"	"	b	"	
16	b	b f	"	"	"	"	265
17	f	"	d f	f	"	c o	260
18	c o	c	c o	f	"	c m	275
19	b c	"	b	b c	"	b	275
20	b	"	"	"	"	f	280
21	f	"	b m	b c	b	"	285
22	b	"	"	b c	c	"	170
23	c o	"	"	c	c o	c	275
24	c o	"	"	"	b c	"	280
25	b c	b	"	"	b c	"	275
26	c r	"	"	"	c d	g r	275
27	c r	c g r	m s	f s	"	m s	270
28	c	f	m s	"	b c m	"	
29	f	"	c m	c o	"	c s	275
30	f	c o	c	b s	f	"	280

* At 1 $\frac{1}{2}$ fathoms, 275.

NOTES TO JUNE RECORD.

4th. Started under steam at 5^h 30^m A. M.; west point of Great Duck Island (Narsak), north one and a half mile; 5^h 30^m P. M., made fast to land ice in a bay on south side of Upernivik Island; the ice closed in and beset the ship.

6th. Started under steam at 5^h 50^m A. M.; at 10^h 20^m made fast to a grounded berg in 25 fathoms, half a mile west of a rugged island having a large cairn on the summit of its S. W. extreme; Buchan Island west three and a half or four miles.

7th. Passed south of Buchan Island, and close along its west side; at 5^h 30^m A. M. struck and remained fast on a reef of rocks, tide falling; extremes of Buchan Island S. 36° W. and S. 18° E., distant about one mile; at 1^h 30^m P. M. low water.

6th. At 11^h 40^m A. M. observed a rock above water bearing from noon position S. 28° E. (true) three miles; passed inside Horse's Head; 3^h 40^m passed another rock; Horse's Head S. 15° E.; Cape Shackleton (North Bluff) N. 46° E. (true).

9th. Steamed at intervals for about three hours.

11th. Made fast one mile N. of the Duck Islands.

13th. Tried to raise a lead close to Cape Wilcox but failed and returned; new moon at 2 P. M., high water at 11^h 5^m A. M.; rise 3 feet 8 inches; flood sets N. N. W., ebb sets S. S. E., about 2' an hour between the islands.

13th. At 10^h 40^m P. M. steamed to the northward, and made fast to land ice; 4' N. 1/2 W. from Eastern Duck Island.

17th. 4 P. M. saw the Sabine Islands bearing N. E. (true), and distant seven miles.

18th. Passed through and steamed along the land ice.

19th. Made fast at a nip; four bears seen, many seals and birds; 10 A. M., until 3^h 30^m P. M., under sail, working to westward; unable to distinguish the land ice from the loose ice.

23d. Advanced one mile to the N. W.; progress impeded by alps.

23d. At 9 P. M. got through the alp and made sail to the N. W.; three bears seen.

24th. At 11 A. M. came up to a nip and made fast; about 500 little anks shot.

25th. Nip opened; proceeded under steam and sail; two bears seen; at 4^h 30^m P. M. stopped at a nip; 5' S. E. of Bushman Island.

26th. 7 P. M. made fast to land ice; Cape York N. W. 4'; 9 P. M. proceeded to the westward; shot a walrus.

27th. Blowing strong and very thick; 3^h 15^m P. M. made fast to a floe; when clear saw Conical Island N. W. 18' or 20'; off shore six miles.

28th. Find this floe is held fast by grounded bergs near us; 42 fathoms; mud and stones; shot rothies; many rothies' eggs picked up.

29th. The ship is in a large space of water; no lead visible; considerable movement in the loose ice caused by current and wind.

30th. 6 A. M. tying to a floe three miles off shore.

[The specific gravity of the surface water is copied from the fourth number of the *Board of Trade Papers*.]

July, 1858. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.

DAY.	4h.	8h.	Noon.	4h.	8h.	Midnight.	Direction of the Wind, &c.
1	f	"	f	f	f	b m	261
2	b e	b c m	f m	b e	b m	e s	275
3	m o	"	f o	"	"	"	270
4	f	"	"	"	"	b e	270
5	b e	"	"	e o	"	e f	275
6	e s	"	e e	"	e	f	275
7	"	e	m	e o	b e	"	
8	b	b e	"	"	"	"	
9	b	"	"	b e	"	"	270
10	b	b e	"	"	"	"	
11	b	b e	"	"	"	"	270
12	b	b e	e o	"	"	"	
13	"	"	"	"	"	"	
14	e s	e o	e o	e o	e s	"	275
15	e	e o	"	e q r	e	"	
16	e	e o	e f	b e	f	b e	270
17	"	"	"	b e	"	"	275
18	f	b e	"	b e	f	"	
19	f	b	"	b e	"	"	
20	"	"	"	b e	"	"	
21	b e	"	"	b e	"	"	275
22	b e	"	"	"	"	"	
23	b e	"	"	"	"	"	
24	b e	"	"	"	"	"	225
25	b e	"	"	"	"	"	205
26	b e	"	"	f	b e	e	
27	b e	"	"	"	"	"	
28	b e	"	"	"	e o	b e	
29	e o	"	"	e o	"	"	230
30	m o	f r	"	"	e m	"	
31	e m	e o	m e r	e o	"	e r	

NOTES TO JULY RECORD.

1st. Noon, the ship received a considerable nip, the foos being checked by a grounded berg; rudder damaged.

2d. Several large seals on the ice; 4 P. M., water visible, started under steam and reached at 8 P. M.; made all sail; midnight lost sight of the pack.

3d. Passing through loose ice; a seal shot.

4th. At midnight (4th-8th) fog cleared off, the pack close to leeward of us.

5th. Sailing along the pack edge. 9 P. M., about 15 miles from Conical Island; bore up through lane in the pack.

6th. Sailing through heavy ice, thick fog at midnight.

7th. Lying fast to a large floe in a confined space of water; Cobourg Island visible to the northward.

8th. Noon, steamed about four miles to the west; land visible from E. N. E. to N. $\frac{1}{2}$ W. (magnetic.)

9th. From 2 P. M. until 7 P. M. working through nips.

10th. Noon, Cobourg Island in the N. W. 15° or 18°; a seal shot.

11th. 2 A. M., reached a large space of water with ice in shore; no ice in sight towards Jones' Sound; found the pack to rest against the land; a black whale seen; 11 P. M., rounded Cape Horn-borg two miles off shore.

12th. Made fast to land ice off DeRos Island and communicated with natives; proceeded four miles farther into a large space of water; found ice all around; kept ship between the pack and the land westward of Cape Osborne.

13th. At 2nd 20th A. M., made fast to land ice $\frac{1}{2}$ mile off shore in seven fathoms water; the pack fast driving up the sound and closing in.

14th. The pack in the offing moving with the wind and tide; found a high water mark, a piece of an oaken ship's timber 7 x 8 inches, with three nails and an iron bolt through it, much bleached.

- 15th. Proceeded to Cape Warrader; ice all round.
 16th. Lying in a space of water off Cape Warrader.
 17th. The ice is very loose; stopped when within four miles of Cape Hay; many narwhals and two black whales seen.
 18th. Commenced boring through the pack to the S. E.
 19th. Attempted to bore through the pack; a seal shot.
 20th. Attempted to bore through the pack; a very large bear shot.
 21th. Steaming through loose ice from 7 until 10 P. M.; 8 P. M., off Possession Bay.
 22th. Made fast to the land ice; a bear seen.
 23th. 4 A. M., ship drifted to a loose floe in order to drift to the southward with it.
 24th. Made fast to land ice off Button Point; at noon one mile off shore; shooting party brings back 312 loons.
 25th. Captain and Interpreter left the ship to visit the natives up the inlet; shooting party returns with 301 loons.
 26th. The ice in the Inlet broke up; shifted ship to the land ice $1\frac{1}{2}$ mile N. E. of Button Point; Captain and party returned.
 27th. 9 P. M., commenced steaming up Foad's Inlet with two natives on board.
 28th. 8 A. M., came to fast ice 17 miles up the Inlet, found it too weak to make fast to; a strong sea current.
 (Numerous narwhals were seen this month.)
 [Notes on specific gravity of sea water are from the 4th paper of the Board of Trade.]

August, 1858. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.							
DAY.	4h.	8h.	Noon.	4h.	8h.	Midnight.	Specific Grav. of Sea Water, 10°
1	o c	c	"	c o	b c g	b c	
2	c o g	b c	"	"	"	"	
3	b c	"	"	b c	"	"	
4	c	c o	b c	"	"	c c	
5	b c	c	"	"	b c	"	
6	b	"	"	"	b c	"	
7	b	b c	"	b c g	c g	m g r	
8	m o g	"	m o r	m o g	c o g	c o	
9	m o	"	"	"	"	"	
10	o s	f	m o	"	f	"	235
11	f	"	"	"	"	"	
12	b c	"	"	"	"	"	
13	c	b c	"	"	"	"	235
14	c o	c	b c	"	"	"	
15	c	"	"	"	b c	"	240
16	c	b m	b f	b m	f r	f c	
17	f c	b c	b m	b c	c o	"	240
18	c m	c	c r	b c	c o r	c o m	230
19	c o	b c	"	"	"	c o	220
20	c o	"	c o o	b c	b c r	c	210
21	b c	"	"	"	c o	"	
22	c o	"	"	o s	"	c o	
23	f	"	c o	"	"	"	
24	c o	"	b c	c o	b c	"	
25	b c	"	"	"	o s	"	
26	c g	b c g	b c	c o	"	"	
27	"	c g	"	"	"	c o s	225
28	c o	"	"	"	"	"	
29	c f s	m o	b c	c o	"	"	
30	c o	"	b c	"	"	"	
31	c o	"	"	"	"	"	

NOTES TO AUGUST RECORD.

1st. 5th 45^m A. M., Captain and party left the ship to visit the natives at Kaperotolik; many seals were seen; ice broke adrift; got the ship clear when within her own length of a rock.

3d. Heading to the westward through drifting ice; 6 P. M., Captain and party returned; bore up to the eastward.

3d. Midnight (2-3) four natives came on board; endeavoring to heat out of Pond's Bay.

4th. Found the current to set westward along the north shore; whales seen.

5th. Steaming from 4 until 7 P. M.; then made fast to land ice, three miles southeast of Cape Graham shore; whale seen.

7th. A bear shot.

8th. A heavy gale with very heavy sea.

10th. Many walrus seen; passed through a few streams of ice; 9 P. M., rounded Cape Hard in thick fog; grounded in the mouth of Rigby Bay; floated off; a bear shot.

11th. A bear shot; anchored inside Cape Riley and commenced taking on board coals.

12th. Loose ice in motion with the tide; coaling from C. Riley and receiving stores from Beechey Island.

14th. Proceeded to Beechey Island; anchored off the house in five fathoms.

16th. Sailed for Cape Hotham at 6 A. M., at 7^h 30^m off Cape Hotham depot, landed and brought off two whale boats; proceeded to the westward.

17th. Steered for Peal Sound 9 P. M., Cape Granite N. 73° E., and Cape Lyons N. 56° W.; observed fast ice extending across the straits from about Cape Briggs to McClure Bay; bore up for Narrow Straits.

18th. At 2^h 15^m A. M., passed Limestone Island; 4 P. M., off Cape McClintock; 9 P. M., steaming against a head-wind round N. E. cape; midnight anchored in Port Leopold in seven fathoms; 1' N. N. W. of Whaler Point.

19th. Examining stores on Whaler Point; 5^h 30^m P. M. made sail to the southward.

20th. 10^h 30^m A. M., passed Fury Point in a snow shower; 4 P. M., off Cape Garry; 8^h 30^m, rounded the north point of Brestford Bay; observed a small cairn upon it; 10^h 15^m, anchored in a bay four miles farther west.

21st. A bear shot; made an attempt to pass through Bellot Straits, found it full of loose ice in rapid motion with a very strong tide; returned to Depot Bay; erected a cairn and landed a depot of 15 days provisions.

22d. A hunched seal shot.

23d. Made another attempt to pass through Bellot Straits, found it choked; ran to the southward until stopped by fast ice; anchored in a harbor on east side of Levesque Island at 4 P. M.; a herd of reindeer seen on north shore of Bellot Straits, and two seen on shore here.

24th. Made another attempt to penetrate Bellot Straits; anchored in a small bay on the north shore, about half way through at 11^h 15^m P. M., a very unsafe position.

25th. At 3^h 30^m A. M., left anchorage and stemmed west 4', but being unable to get further returned to Depot Bay and anchored there at 8 P. M.

26th. At 9 A. M., ran to the southward, anchored in Stillwell Bay 7 fathoms soft mud; landed 120 rations in caeks in lat. 71° 21' N.; heavy streams of ice in the offing.

27th. 9 A. M., made sail for Depot Bay; working to windward between the streams of ice in the offing and the land.

28th. Very little ice seen this day.

29th. Noon, anchored in Depot Bay in 10 fathoms water.

30th. At 5 A. M., steamed into Bellot Straits, finding it still full of loose ice; anchored in a harbor at the head of Port Kennedy at 10^h 30^m A. M. in 11 fathoms; at 6 P. M. Captain and boat party left the ship to examine the ice in Victoria Strait from the western hills; a herd of deer seen and a bearded seal shot.

31st. Several deer seen inland.

[Several Brent geese and Peregrine falcons shot on the 23d and 29th; from the 1st to the 5th whales were very numerous.—*B. of T. Papers.*]

September, 1858. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.						
DAY.	4h.	8h.	Noon.	4h.	8h.	Midnight.
1	b	bc	"	"	bc	"
2	bc	"	"	"	b	"
3	"	c	bc	"	"	"
4	"	"	bc	"	"	"
5	bc	c	"	bc	"	"
6	c	cc	"	"	"	"
7	cc	"	"	c	cc	"
8	cc	"	"	c	cc	"
9	cc	c	bc	"	"	b
10	cc	c	bc	cc	c	"
11	cc	bc	"	c	cc	"
12	c	"	"	c	"	"
13	bc	b	"	"	bc	b
14	bc	"	"	"	"	"
15	"	cc	c	"	cc	bc
16	cc	c	"	"	"	"
17	cc	"	c	cc	"	"
18	c	bc	"	cc	c	"
19	c	"	"	"	"	"
20	fs	c	"	cc	cc	"
21	cc	"	"	"	"	cc
22	cc	"	bc	"	"	"
23	"	"	"	cc	"	b
24	c	bc	"	"	bc	cc
25	ccs	"	"	c	"	"
26	cc	"	"	"	cc	"
27	bc	"	"	c	ccs	c
28	c	"	"	"	"	cc
29	c	cc	"	"	c	"
30	c	ccs	cc	cc	"	"

NOTES TO SEPTEMBER RECORD.

- 1st. One reindeer shot.
 2d. Captain Young and boat party left to explore the S. W. part of Brentford Bay.
 5th. Party returned; several deer seen.
 6th. 6 A. M. steamed into Bellot Straits; high water at 11^h A. M.; flood tide running east; 1^h 30^m P. M. passed into the western sea; found the main pack resting upon Capes Bird and Hopkins, and extending as far west as visible; made fast to the edge of the ice; 1' south of Cape Bird.
 10th. Two seals shot.
 11th. Returned to Port Kennedy and anchored in the entrance in 10 fathoms; a few deer seen, and a hare shot.
 12th. A hare shot.
 13th. [Observed a comet.]
 18th. Steamed through Bellot Straits and made fast to the ice near Pemman Rock; sent an officer and dog-sledge to examine the ice between us and Separation Island.
 20th. At 8^h 15^m P. M. a vivid flash of sheet lightning was observed.
 21st. Dogs and parties carrying provisions to the southward.
 23d. 8 P. M. observed the comet, increased in brilliancy.
 25th. Lieut. Hobson and parties started with thirteen days' provisions to carry out southern depots; placed a boat and gear upon Pemman Rock.
 27th. Placed a depot of 100 rations on Pemman Rock; cast off at noon and steamed for Port Kennedy; when 4^h miles within western end of Bellot's Straits, ascended in 75 fathoms; rock and sand; tide about to commence setting west; boring through young ice, and sledge ran into the fast ice in the entrance of Port Kennedy at 10 P. M., and, being unable to penetrate further, made fast; 13 fathoms water; off shore one-fourth of a mile; 12 fathoms at Wieler Quarters.
 29th. Two reindeer shot; their weights, exclusive of the entrails, are 354 and 139 lbs.
 30th. Reindeer seen.
 [Specific gravity of sea water 7th, 1.0215; on the 27th, 1.0230; at 65 fathoms, 1.0210; temp. 31°.—B. of T. P. re.]

October, 1858. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.						
DAY.	4h.	6h.	NOON.	4h.	6h.	Midsight.
1	c	"	"	s	"	"
2	o s	c o	"	"	m s	"
3	s	m s	o m s	c o	q s	"
4	o q s	c o	o s	m s	"	"
5	m s	c	"	o	m s	"
6	c o	c	"	"	s	"
7	c	c m	b c	o s	s	m
8	b c	b	"	"	"	"
9	b	"	"	"	"	"
10	b	f	"	f s	s	"
11	s	m s	o m s	m s	"	"
12	m s	c	b c	b	b c	b
13	b c	"	"	"	"	"
14	b c	"	"	"	"	"
15	b c	"	"	"	"	"
16	m s	s s	"	o s s	"	o s
17	o s	"	"	"	"	"
18	o s	"	b c	"	"	"
19	m s	s s	"	"	"	"
20	s	s	b c	b	"	"
21	m s	b c s	m s	m s	c s	b c
22	s	"	"	b c	"	"
23	b m	o m s	m s	"	"	o s
24	"	"	o s	m s	o s	"
25	"	b c	b c	"	"	"
26	b m	"	"	b c s	b c s	"
27	b s	"	"	"	"	"
28	b	"	"	"	"	"
29	b c	"	"	"	"	"
30	m s	m s	"	m s	m s	m s
31	m s	"	"	m s	"	"

NOTES TO OCTOBER RECORD.

1st. Four reindeer seen; 8 P. M., the crack ranoing up the harbor widened; hove the ship eighty yards further ahead.

2d. Two small herds of deer seen.

3d. 10^h 30^m P. M. lightning observed.

4th. Three ptarmigan seen.

5th. Two herds of deer seen.

6th. Reindeer seen.

7th. A few reindeer and ptarmigan seen.

8th. A reindeer shot; 10 P. M. comet visible.

9th. 10 P. M. comet visible.

10th. Four reindeer seen.

12th. One reindeer seen.

13th. Built an ice-house for magnetic observatory.

15th. Thickness of ice formed since the third, 9 $\frac{1}{2}$ inches.

19th. Lient. Hobbs and party started to carry depot down the west coast of Boothia at 8 A. M.

20th. A hare shot; many seals seen in the open water in the straits; 8 P. M. halo round the moon, diameter about 45°.

22d. 8 P. M. Prismatic halo around the moon.

24th. 8 P. M. aurora in the S. E. [about 20° above the horizon].

25th. From 8 P. M. until midnight, faint aurora between S. and N. W. [about 25° above the horizon, the extremities being joined by a narrow band stretching across the zenith—*H. of T. Papers.*]

30th. A hare shot, two deer seen; 8 P. M. faint aurora in the S. W.

31st. Two ptarmigan shot; 10 P. M. faint aurora in the N. W.

November, 1858. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.												
DAY.	2d.	4d.	6d.	8d.	10d.	Neon.	2d.	4d.	6d.	8d.	10d.	Mid%
1	m	m	m	e	m	m	m	m	m	m	m	m
2	m	m	m	b	m	m	m	b	m	m	m	m
3	b	m	m	m	m	m	m	m	b	m	m	b
4	b	m	m	m	m	m	m	m	m	m	m	m
5	b	m	m	m	m	m	m	m	m	m	m	m
6	b	m	m	m	b	m	m	m	m	m	m	m
7	m	m	m	m	m	m	m	m	m	m	m	m
8	b	m	m	m	m	m	m	b	m	m	m	m
9	b	m	m	m	m	m	m	m	m	m	m	m
10	b	m	b	m	b	m	m	m	m	m	m	m
11	b	m	b	m	b	m	m	m	m	b	m	b
12	b	m	m	m	m	m	m	m	m	m	m	m
13	b	b	b	m	m	m	m	m	m	m	m	m
14	m	m	m	m	m	m	m	m	m	m	m	m
15	m	b	m	m	m	m	m	b	m	m	m	m
16	b	m	m	m	m	m	m	m	m	m	m	m
17	m	m	m	m	m	m	m	m	m	m	m	m
18	m	m	m	m	m	m	m	m	m	m	m	m
19	b	m	m	m	m	m	m	m	m	m	m	m
20	b	m	m	m	m	m	m	m	m	m	m	m
21	m	m	m	m	m	m	m	m	m	m	m	m
22	b	m	m	m	m	m	m	m	m	m	m	m
23	b	m	m	b	m	m	m	m	m	m	m	m
24	b	m	m	m	m	m	m	m	m	m	m	m
25	b	b	m	m	m	m	m	m	m	m	m	m
26	b	m	m	m	m	m	m	m	m	m	m	m
27	m	b	m	m	m	m	m	m	m	m	m	m
28	m	m	m	m	m	m	m	m	m	m	m	m
29	b	m	m	m	m	m	m	m	m	m	m	m
30	m	m	m	m	m	m	m	m	m	m	m	m

NOTES TO NOVEMBER RECORD.

- 6th. Lieut. Hobson and party returned; a recent deer track seen.
 9th. [10 P. M. faint aurora from S. by E. to W. S. W.]
 7th. and 8th. [10 P. M. aurora faint in S. W.]
 9th. Faint aurora between S. and W. 10° above horizon, 10 P. M.
 12th. 10 P. M. a pale streak from the northern horizon to the zenith.
 14th. 10 P. M. faint aurora between S. W. and W. N. W.
 16th. A deer came near the ship; three ptarmigan seen; [thickness of ice 1 foot 9½ inches]
 21st. A ptarmigan seen.
 23d. 10 P. M. a halo around the moon.
 24th. Three ptarmigan seen.
 26th. 8 P. M. several willow grouse seen; two deer seen.

December, 1858. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.

DAY.	2h.	4h.	6h.	8h.	10h.	Noon.	2h.	4h.	6h.	8h.	10h.	MIDN.
1	b c	"	"	"	b	"	"	"	"	"	"	"
2	b c	"	"	"	b m	"	"	"	"	"	"	"
3	b	b c	"	"	m	"	"	"	"	"	"	"
4	b m	"	"	"	b c	"	"	"	"	"	"	"
5	b c	"	"	"	"	"	"	"	"	"	"	"
6	b c	"	"	"	"	"	"	"	"	"	"	"
7	b c	"	"	"	"	"	"	"	"	"	"	"
8	b	"	"	"	"	"	"	"	"	"	"	"
9	b m	"	"	"	"	"	"	"	"	"	"	"
10	b c	b c m	"	"	b c m	"	"	"	"	"	"	"
11	"	b m	"	"	"	"	"	"	"	"	"	"
12	b c	"	b m	b c	"	"	"	"	"	"	"	"
13	b	"	"	"	"	"	"	"	"	"	"	"
14	b	"	"	"	"	"	"	"	"	"	"	"
15	b c	"	"	b c	"	"	"	"	"	"	"	"
16	b m	"	"	"	"	"	"	"	"	"	"	"
17	b	b c	b m	"	"	"	"	"	"	"	"	"
18	m	c m	"	"	"	"	"	"	"	"	"	"
19	b c	"	"	"	"	"	"	"	"	"	"	"
20	b c	"	"	b c	"	"	"	"	"	"	"	"
21	m	"	b m	"	"	"	"	"	"	"	"	"
22	m	"	"	"	"	"	"	"	"	"	"	"
23	m	"	"	"	"	"	"	"	"	"	"	"
24	b c	"	"	"	"	"	"	"	"	"	"	"
25	b c	"	"	"	"	"	"	"	"	"	"	"
26	m	"	"	"	"	"	"	"	"	"	"	"
27	m	"	"	"	"	"	"	"	"	"	"	"
28	b c	b m	"	"	"	"	"	"	"	"	"	"
29	b	"	b c	"	"	"	"	"	"	"	"	"
30	b c	"	"	"	"	"	"	"	"	"	"	"
31	b c	"	"	"	"	"	"	"	"	"	"	"

NOTES TO DECEMBER RECORD.

- 1st. Four ptarmigan seen.
- 3d. 11 P. M., pale aurora in S. W. (true), about 18° above horizon.
- 4th. 10 P. M., aurora in S. W. [Bright from E. to W. N. W. (through south), about 25° above the horizon.—*B. of T. Papers.*]
- 5th. A ptarmigan seen; from 8 P. M. until midnight aurora from horizon between S. E. and W., extending upwards nearly to the zenith. [6 to 7^h 30^m P. M., flashes from S. E. to N. W. across the zenith; at 10 P. M. flash to the westward, and at midnight in W. N. W. and across zenith from N. W. to S. E.—*B. of T. Papers.*]
- 6th. 8 until 9 P. M., pale aurora between W. and S. E., about 35° above horizon.
- 8th. A fox caught; 8 P. M., aurora in the S. E. [about 40° above horizon].
- 9th. A fox caught.
- 10th. A fox caught.
- 11th. 10 P. M., several shooting stars.
- 12th. 5 to 1 P. M., bright aurora between E. by S. and N. W. [Bright from N. W. to S. E. (through S.) about 60° above horizon.—*B. of T. Papers.*]
- 13th. 6 to 1 A. M., light aurora between S. E. and N.; 9 P. M., aurora from S. S. E. to W. N. W., about 20° above the horizon [and continuing until midnight]; several ptarmigan seen.
- 14th. 4 A. M., bright aurora from S. W. through E. to N. W.; 10 P. M., aurora between S. E. and S. W. near the horizon. [30° above horizon.—*B. of T. Papers.*] Ptarmigan seen.
- 15th. 5 to 8 A. M.; bright aurora from E. through S. to N. W. [30° above horizon.—*B. of T. Papers.*]
- 18th. 6 P. M., a lunar halo, diameter about 45°.
- 19th. A covey of ptarmigan seen.
- 20th. 8 P. M., a lunar halo, diameter 45°.

23d. A ptarmigan seen.

24th. 11 P. M., bright aurora all over the heavens [causing the magnetometer to oscillate considerably.—*B. of T. Papers*].

28th. Auroras between S. S. E. and W. by N., about 20° above the horizon.

29th. A ptarmigan, and the recent track of a deer, and one or two harems seen.

30th. 5 P. M., aurora to the southward, about 35° above the horizon.

31st. A ptarmigan seen.

January, 1859. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.													
DAY.	2d.	4th.	6th.	8th.	10th.	Noon.	2d.	4th.	6th.	8th.	10th.	Mid'y.	
1	m s	b m	b	"	b c	"	b r z	b c	b m s	b m	b c z	b c	"
2	b m	m s	"	c z	"	"	b c z	"	"	b r	"	"	"
3	b c	"	"	"	"	"	b m c	b c	"	"	"	"	"
4	b c	"	b	"	b z	b c z	"	"	"	"	"	"	"
5	b c	"	b m	b m c	"	"	b	"	b m	b	b m	"	"
6	b m	b c	b m	"	b m	"	b m z	"	"	"	"	"	"
7	b m z	b c	"	"	"	"	b m z	"	"	"	b m z	"	"
8	b m z	"	"	"	"	"	b m	"	b	"	"	"	"
9	b	b m	"	"	b c	"	"	"	b c	"	"	"	"
10	b	"	"	"	"	"	"	"	"	"	"	"	"
11	b	"	"	"	m s	"	"	"	m z	"	b m	"	"
12	"	"	b m	"	"	"	b c	"	"	b m z	c m	b c	"
13	b c	"	c	c m	c m z	"	"	"	"	"	"	"	"
14	m s	"	"	"	"	"	"	"	m z	m	b c	"	"
15	b	"	b c z	"	"	"	"	"	"	"	"	"	"
16	b m z	"	b	"	b m	b c	"	"	"	b c m	"	"	"
17	b m	"	b c	"	c m z	m s	c m	"	"	b c m z	"	"	"
18	b m z	"	"	"	"	"	"	"	"	"	"	"	"
19	b c	"	b m	b	b m	"	b	"	b m	"	"	"	"
20	m s	"	"	b m z	b c	"	"	"	b m	"	"	"	"
21	b	"	b m	"	"	"	"	"	"	"	"	"	"
22	b m	"	"	"	m s	"	"	"	"	"	"	"	"
23	b m	"	"	b c	m	b m	"	"	b	b c	"	"	"
24	b	"	b z	b m z	"	"	"	"	"	"	"	"	"
25	b m z	"	"	"	"	"	"	"	"	"	"	"	"
26	b m c	"	"	"	"	"	"	"	"	"	"	"	"
27	b	"	"	b m	"	"	"	"	b m z	"	"	"	"
28	b m z	"	"	b m	b m z	"	"	b m z	"	"	"	"	"
29	b m z	"	b m	"	b	b m	"	"	"	"	"	"	"
30	b	b m	"	"	"	"	"	"	"	"	"	"	"
31	b	"	"	"	"	"	"	"	"	"	"	"	"

NOTES TO JANUARY RECORD.

1st. 8 P. M. aurora from S. to W. about 40° above the horizon.

3d. 8 P. M. faint aurora in the S. W. about 40° above horizon, just above fog bank.

3d. 5 P. M. faint aurora in the east from horizon to zenith; 11 P. M. narrow band of aurora from E. S. E. to zenith.

8th. 10 P. M. faint aurora between S. E. and W. S. W. near the horizon.

9th. 6 to 7 A. M. bright aurora between W. and N. W.; 10^h 30^m P. M. a narrow band of aurora from S. to W., passing through the zenith.

10th. 5 to 7 A. M. slight aurora from S. E. through S. to N. W.; 8 P. M. until midnight, strong auroral bands from S. to N. through the zenith.

11th. 9 P. M. until midnight, aurora between S. E. and W. about 15° above horizon.

12th. Some ptarmigan seen.

13th. A ptarmigan seen.

14th. 10 P. M. a lunar halo, diameter 45°.

16th. A ptarmigan shot.

17th. A fox caught; 6 P. M. a lunar halo.

- 18th. A fox caught; 6 P. M. a bear's track seen in Depot Bay.
 19th. A hare shot; 10 P. M. a halo round the moon.
 21st. A ptarmigan shot, and a hare seen.
 22d. A raven seen.
 26th. Son's upper limb appeared at 11 A. M.; fresh tracks of two reindeer seen.
 30th. Three ptarmigan shot, 3 A. M.
 31st. 3 A. M. bright aurora between S. E. and N. W., passed through S. W.; 6 P. M. pencils of auroral rays from horizon to zenith between S. E. and W.; electrometer strongly affected; two ptarmigan shot.

February, 1859. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.													
DAY	2 nd	4 th	6 th	8 th	10 th	Noon.	2 nd	4 th	6 th	8 th	10 th	Midn.	
1	b	"	"	"	"	"	"	"	b m	b	"	b z	
2	b m z	"	"	"	"	"	"	"	"	"	"	"	"
3	"	"	"	"	b c z	b c z	"	"	b m z	b m z	"	"	"
4	m z	"	"	"	b z	b c z	b c m z	"	m z	b	b m	"	"
5	b m z	b m	"	"	"	"	"	"	b m	"	"	"	"
6	b m z	b m	b m z	"	"	"	"	"	b m	"	"	"	"
7	b z	"	"	"	"	b c z	b c z	b c z	b m z	b c	"	"	"
8	b	"	"	"	"	"	"	"	b m	b z	"	"	"
9	b z	b m	"	b c	"	"	"	"	"	"	"	"	"
10	b m	"	"	"	m z	b m	b c	b m	b	"	"	"	"
11	b z	"	"	"	b c z	b z	"	"	b c	b z	"	"	"
12	b	"	"	b c	"	c m	m z	"	b c	"	"	"	"
13	b	"	"	b c	b c m	b m	"	"	"	"	"	"	"
14	b z	"	"	"	b c z	"	"	b c z	b m	"	"	"	"
15	b m	b z	"	"	b c z	"	"	b m z	"	"	b m	"	b m z
16	b c	b m	"	"	b m z	b m	"	b m z	"	"	"	"	"
17	b	b m	m z	"	"	"	"	b c	b m	"	"	"	b c z
18	b z	b m	"	"	"	b m	"	"	"	"	"	"	"
19	b m	m z	b m z	"	"	"	"	"	"	"	"	"	"
20	b c	"	"	b m	b c	b c z	b z	b	"	"	"	"	"
21	m	"	"	b m	b	"	"	"	"	"	"	"	"
22	b z	"	"	"	"	"	b c z	"	"	"	"	"	"
23	b	"	"	"	"	"	"	"	"	"	"	"	"
24	"	b m	"	"	"	"	"	"	"	"	"	"	"
25	b m z	m z	"	"	"	"	"	"	"	"	"	"	"
26	b m	"	"	"	"	"	"	"	b c m	b m	"	"	"
27	b	"	"	"	"	"	"	"	"	"	"	"	"
28	m z	"	b m z	"	"	b z	"	"	"	"	b z	"	"

NOTES TO FEBRUARY RECORD.

- 1st. 3 A. M. aurora between S. E. and N. W., passing through south.
 2d. A ptarmigan shot.
 3d. Two reindeer seen; ascertained the water space in Bellot Straits for one mile east and west.
 4th. A seal and a doveck seen in the open water.
 8th. 8 P. M. aurora in the S. W.
 9th. Some ptarmigan seen.
 12th. Two reindeer and several ptarmigan seen; a sooty fox caught; halo round the moon.
 13th. Two ptarmigan seen; halo round the moon.
 17th. 8 A. M. the early travelling parties left the ship; fifteen ptarmigan shot.
 19th. 10 P. M. aurora from south to north through the zenith.
 20th. Nine ptarmigan shot; 11 P. M. faint aurora from south to zenith.
 21st. Thermometer against a black surface exposed to the sun showed zero; [exposed against the ship's side, -0.5° .]
 23d. 2 A. M. very bright aurora from N. E. to S. W.; at 4 A. M. alight aurora to the east; four ptarmigan shot; one white fox caught.
 24th. Two white foxes caught.
 25th. A white fox caught.
 26th. A hare seen; 11 P. M. until midnight, aurora from north to south through zenith.
 27th. A fox caught.

March, 1859. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.

DAY.	2d.	4th.	6th.	8th.	10th.	Noon.	2d.	4th.	6th.	8th.	10th.	Midn.
1	b	a	a	a	a	a	b m z	b	b z	b m	a	b
2	b	b z	a	a	a	a	a	a	a	a	a	a
3	a s	a	a	a	a s	a	m z	b m	b z	a	a s	b z
4	b z	a	a	a	b z	a	a	a	a	a	a	a
5	b	b z	a	a	a	a	b	b z	a	a	b	a
6	b	a	b z	a	a m	a	a s	b m	b z m	a	b	a
7	b	a	b z	a	b m	m z	b m	a	a	a	a	a
8	a s	a	a	a	a	a	b m z	a	a	a	a	a
9	a s	a	b z	a	a s	a	a	a z	b m	a	a	a s
10	b z	a	a	a m	b	a	a	a	b z	a	b	a
11	b z	a	a	m z	a	b z	a	a	b m z	b m z	b m z	b m z
12	b m z	a	a	a	a	a	a	a	a	a	a	b m z
13	b z	a	a	a	b z	b z	b z	a	a	b m	b	a
14	b	a	a	b z	a	a	a	a	a	a	a	a
15	b	a	b z	a z	a	a	a	a	b m z	b m z	a z	a
16	b m z	a	b z	a m z	a	a	a	a	a	a	a	a
17	b z	b z	a z	a	b z	a	b z	a	a	a	b z	b m z
18	b m z	a	a	b z	a	a	b m z	a	a	a	b m	a
19	b m	a	a	a	a	a	a	a	a	a	a	a
20	b	a	b z	b	b m	a	a	a	a	a	a	a
21	b m	b z	b	a	a	a	a	a	a	a	a	a
22	b	a	a	a	a	a	b z	a	a	a	b m	a
23	b m	a s	a	b z	b	a	a	a	a z	a	a	a
24	a z	a	a	a	a	a	b z	a	a	a	a	a
25	b m	a s	a	a	a	a	a	a	a	a	a	a
26	a s	a	a	a	a	a	a	a	a	a	a	a
27	b z	a	a	b z	a	a	b m	a	b z	a	b z	a
28	a	b z	a	b	a	a	b z	a	a	f	a	a
29	a	a	a	b z	a	a	a	a	a	a	a	a
30	a	a	a	a	a	a	a	a	a	a	a	a
31	a	a	a	a	a	a	a	a	a	a	a	a

NOTES TO MARCH RECORD.

- 2d. Seven ptarmigan and one hare shot.
 3d. Noon, Captain Young and party returned.
 4th. Twelve ptarmigan shot.
 5th. Frost smoke in Prince Regent's Inlet.
 6th. A white fox caught, a reindeer seen, a ptarmigan shot; 9 P. M. a narrow band of aurora from N. N. W. to S. S. E. through zenith—a well-marked divergence of leaves of gold electrometer.
 10th. Nine ptarmigan shot; one hare seen.
 14th. Noon, Captain McClintock and party returned.
 15th. 2 A. M. a lunar halo; two ptarmigan shot.
 18th. 9 A. M. Captain Young with two dog sledges left for Fary Beach; 1 P. M. Dr. Walker with a party started to bring in depot from Cape Airy.
 19th. Two bears seen, and two ptarmigan shot.
 20th. A hare seen; a white fox caught.
 21st. A hare seen.
 22d. A hare seen and a white fox caught; several ptarmigan seen.
 23d. A hare seen and a ptarmigan shot; a lemming caught; Bellot's Straits entirely free from vapor.
 24th. A ptarmigan shot; a white fox caught; a bear seen.
 25th. 10 A. M. Dr. Walker and party returned.
 26th. Two bears seen.
 28th. A hare and a ptarmigan shot; 8 P. M. Captain Young and party returned from Fary Beach.
 30th. A parhelion on each side of the sun; a ptarmigan shot and a hare seen; at midnight aurora seen between land to W. and S. W. and observer.
 31st. 11 P. M. aurora in west seen between land and observer.

April, 1859. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.

DAY.	5h	9h	Noon.	4h	5h.	11h.
1	b c	"	b s	b c s	b p z	"
2	b p z	b z	b	"	"	"
3	b s	b	b c	c	c m s	"
4	c m s	c s	"	c	"	b c
5	c m	"	b c	b	"	b c
6	b s	b c	b c z y	b c	"	"
7	b c	"	"	b	"	"
8	b c	b	"	b c	"	b
9	"	g s	b c	"	g s	b
10	c	b c	b s	b c z	b c	b
11	b	"	"	"	"	"
12	b	"	"	"	"	"
13	b	"	"	"	"	"
14	c r	"	b s	"	b	b z
15	b c	"	"	"	"	"
16	b	"	"	"	b c	"
17	"	"	c r s	"	c r	c s
18	c r	c r z	c r z	c r z	b c z	c s
19	"	c r z	b c	b	c r	"
20	c r	b	b c	"	"	c r z
21	"	"	"	b c	b c z	c s
22	"	b	c s	"	b	"
23	"	b	b c	b z	b c z	b m z
24	b z	"	c r z	"	"	b m z
25	b m	b z	b	b p	"	"
26	"	"	"	b	b p z	c r
27	b	c c	b c	"	c c s	c s
28	c s	"	c c	b c	c c s	c s
29	b c	b	b c	"	c c s	"
30	c s	"	"	"	m c s z	"

NOTES TO APRIL RECORD.

1st. A fox caught; 10^h 20^m. P. M.; Captain McClintock and party left the ship, also Lieutenant Holman and party for long spring journey to the southward.

4th. A white wolf prowling about the ship.

6th. Travelling party detained by weather.

7th. A hare seen; 9 A. M.; Captain Young and party left ship for search of Prince of Wales' head; a lemming caught.

8th. A hare seen; Bellot Straits quite free from vapor; two ptarmigan shot.

9th. Noticed a second space of water in Bellot Straits, smaller and about two miles further west than first.

10th. A hare seen.

11th. A hare seen; thickness of ice formed since Oct. 3d, 6 feet 2 inches.

13th. A raven seen.

15th. Bellot Straits entirely free from vapor throughout the day.

20th. A hare seen.

21st. A hare seen; prismatic parhelion and part of halo on each side of the sun distant about 22° 30'.

23d. A raven seen.

25th. Two hares seen.

27th. A hare seen.

29th. A bear and two cubs seen.

[No aurora reported.]

May, 1850. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.

DAY.	5h.	8h.	Noon.	4h.	8h.	11h.
1	h s	"	o c m s	h r s	h s	h c
2	h r s	h m s	"	m o s s q	h r y	"
3	o s	"	h c s	h c s q	h r m	o m s
4	o m	"	"	h s	h o	h
5	m o s	o m	o r m s	o s	h c	"
6	"	"	o m s	h r s	h c	h
7	m o	"	o c	h r	h y	h q s
8	"	"	o s	o s s	o s	"
9	o s	"	h c s	h c	h c	"
10	h s	"	h o	h o c	h o	"
11	h	"	"	h s	"	h
12	h	"	"	o c	"	"
13	h	"	h r	"	"	"
14	o s	"	"	o	o s	o s
15	h	"	h r o	"	o r	"
16	h	"	h c	h s y	h r s q	h r q
17	h	"	h g	h r r	h	"
18	o s	"	"	"	h	"
19	o s	h	h c	"	o s	"
20	o s	"	h c s	h c s q	h r o	o c s
21	o s	"	h	"	"	h c
22	o m	"	h r	o r	"	o s
23	o s	"	"	"	o s	"
24	o s	"	o c o	o s	"	h r
25	h s	h y	o c y	o y	"	h r
26	h	"	h c y	h c	"	"
27	o	"	"	"	"	"
28	o	o s	"	o r	h r	o s
29	o s	"	h r	"	"	"
30	h s	"	"	"	"	"
31	o s	o s m	"	o s	h r	"

NOTES TO MAY RECORD.

- 1st. Prismatic parheliion and part of halo on each side of the sun, distant about 23°.
- 3d. Two ravens seen. The water specs in Bellot Strait much increased in extent.
- 4th. A white wolf seen.
- 5th. Parheliion and part of halo on each side of sun.
- 6th. Prismatic parheliion and part of halo on each side of sun distant 22° 20' (observed).
- 9th. Two hares seen; also recent tracks of a small herd of deer.
- 10th. Five hares seen.
- 11th. Ice formed since Oct. 3d, 1855, 5 feet 4 inches; several hares seen.
- 12th. Four hares seen. Two small pools of water noticed in the strait between Fox Island and south shore.
- 13th. Two hares seen; 8 P. M., fine snow falling.
- 14th. A young bear shot; tip to tip 6 feet 1 inch.
- 15th. Two hares seen.
- 16th. Two hares seen; part of Captain Young's party returned.
- 17th. Two hares seen and two snow buntings shot.
- 18th. Two hares and some buntings seen.
- 19th. Three seals and one wolf seen.
- 21st. A snow bunting seen; a long mass of water seen to the E. N. E. in Regent's Inlet.
- 23d. Ice loosened from ship's sides, allowing her to rise 2 feet 4 inches forward and 3 inches aft; two hares seen; also recent tracks of seven deer going northward.
- 28th. A deer seen; two others crossing ice to northward.
- 29th. A fox seen; also several buntings shot; three longmasters seen flying north.
- 30th. One hunting seen, one each shot; four men and sledge started for Peimlenn Rock to join Captain Young.

JUNE, 1859. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.

DAY.	5h.	9h.	Noon.	4h.	8h.	11h.
1	o m e	"	m o r e	"	b e m	b e m e
2	"	m o e	b e s	"	"	" o e
3	o e	"	b e	"	"	"
4	b e	"	"	"	b e	"
5	"	"	b e	"	"	"
6	"	b e	o e	b e	b e	"
7	b e	"	o e	"	"	b e
8	b e	"	"	"	o e g	m o g
9	b e	"	b e	o e	m o r	b e
10	b e	"	"	"	"	"
11	b e	"	"	"	b e g	b e g
12	b e	"	b e	"	"	"
13	b e	"	b e	"	"	"
14	b e	"	"	"	"	"
15	b e	"	"	"	o e	m o g
16	"	"	"	"	"	b e
17	b e	"	b e	"	o f	"
18	"	o e	e e	"	m o e	b e
19	b e	"	o e	o f e	b e	"
20	"	"	b e	o e	"	"
21	"	"	"	"	m o e	"
22	b e	"	o e	b e	"	o e
23	o e	b e	m o e	"	"	b e s
24	b e	o m	b e	"	"	o e
25	b e	"	"	"	"	"
26	b e	"	"	"	"	"
27	o e	"	"	b e	"	"
28	b e	"	"	"	"	"
29	b e	"	o e s	o e	b e	"
30	b e	"	"	"	"	"

NOTES TO JUNE RECORD.

- 2d. A hunting seen.
 3d. Some gulls, a hunting, and a raven seen; black bulb thermometer in sun's rays, 93° in maximo.
 4th. Some geese, gulls, and hunting seen; a bear came near the ship; a fox shot alongside.
 5th. Some hunting and a gull seen; some small pools of water to eastward of Fox Island, in the course of current of straits; several pools of water to E. N. E. and N. E. in Regent's Inlet.
 6th. Measured height of mountain ahead of harbor—1120 feet (aneroid); a small cairn on top.
 7th. Captain Young returned on board; a raven, several ducks, and hunting seen; three reindeer crossing the ice to northward; remainder of Captain Young's party returned.
 9th. A deer, a hare, and a fox seen; also some buntings and sandpipers.
 10th. A deer, some gulls, buntings, and sandpiper seen; some buntings and sandpiper shot; Captain Young and party left the ship.
 11th. Several buntings and gulls seen.
 12th. Two sandpipers shot.
 13th. First plant in flower (*Stellifraga oppositifolia*); a fox caught, and some buntings shot; a deer, a hare, some geese, gulls, and duck seen; ice formed since Oct. 3, 4 feet 6 inches.
 14th. Lieut. Hobson and party returned on board, bringing documents and relics of Franklin's expedition from west side of King William's Land; some duck and sandpipers seen.
 15th. Maximum black bulb thermometer in sun's rays, 96° 5; three sandpipers shot; some gulls seen.
 16th. Two long-tailed ducks and two sandpipers shot; some ducks and gulls seen.
 17th. Many ducks and gulls seen, also one seal; one king and two long-tailed ducks shot.
 18th. Several ducks and one seal seen.
 19th. Captain McClintock and party returned on board, bringing relics of Franklin's expedition obtained from natives on east coast of King William's Land, and picked up on Montreal Island and south shore of King William's Land; a bear, seal, and some duck seen.

- 20th. Two ducks shot.
 21st. One seal shot.
 22d. Twelve ducks and one hare shot; seal seen.
 23d. Five ducks and one red-throated diver shot; a seal seen.
 24th. Four ducks and four deer seen.
 25th. One duck and one diver shot.
 26th. One duck shot.
 27th. One duck and one plover shot; two deer seen.
 28th. Four plover shot.
 29th. One deer seen; two ducks shot; one ermine caught.
 30th. Several geese seen, and a duck shot.

July, 1850. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.													
DAY.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Noon.	2 ^d .	4 th .	6 th .	8 th .	10 th .	Mid'l.	
1	---	am	---	ac	---	bg	---	u	---	b	---	bc	
2	---	bc	---	u	---	u	---	b	---	bc	---	u	
3	---	e	---	bc	---	u	---	b	---	u	---	u	
4	---	b	---	bc	---	u	---	b	---	u	---	u	
5	---	am	---	bc	---	u	---	u	---	e	---	u	
6	---	er	ac	u	---	bc	u	er	er	er	bc	u	
7	bc	ac	u	u	---	bc	u	er	er	er	u	u	
8	am	u	ac	bc	er	u	e	er	er	u	er	er	
9	er	ac	u	p	er	bc	u	u	u	u	u	u	
10	u	ac	u	u	u	er	ac	u	u	u	u	u	
11	er	bc	u	er	u	er	ac	u	u	bc	u	u	
12	bc	u	u	u	u	u	u	u	u	er	er	er	
13	bc	u	er	u	u	e	er	u	u	u	u	u	
14	e	bc	u	u	u	u	u	u	u	u	u	u	
15	bc	u	er	u	u	u	bc	u	u	u	u	u	
16	bc	u	u	u	bc	bc	u	u	u	u	u	u	
17	bc	u	u	u	u	u	u	u	u	e	bc	u	
18	bc	e	er	u	er	er	u	u	u	bc	u	er	
19	am	er	ac	u	er	er	u	u	u	bc	u	u	
20	bc	e	bc	u	u	u	u	bc	u	u	u	u	
21	bc	u	u	u	u	u	u	u	u	u	u	u	
22	u	u	u	u	u	u	u	u	u	u	u	u	
23	u	u	u	u	u	u	u	u	u	u	u	u	
24	bc	u	u	u	u	u	bc	u	u	u	u	u	
25	bc	u	u	u	bc	u	u	u	u	bc	u	u	
26	bc	u	u	u	u	u	u	u	u	u	u	u	
27	e	er	bc	u	u	u	u	u	u	u	u	u	
28	bc	u	u	u	u	u	u	u	u	bc	u	u	
29	bc	u	u	u	u	u	u	u	u	u	u	u	
30	bc	u	u	u	u	u	u	u	u	u	u	u	
31	bc	u	u	u	bc	u	u	u	u	u	u	u	

NOTES TO JULY RECORD.

- 2d. Two ducks and two divers shot.
 3d. Four ducks and two gulls shot.
 4th. Three ducks and one seal shot.
 5th. Commenced tide observations; one duck, one diver, and a silvery gull shot; an ermine seen.
 6th. Two hares seen.
 7th. A gull shot and lemming caught; several seals seen on the ice.
 11th. A seal and a duck shot; the water has much increased in Bellot Straits.
 12th. Several lanes of water seen in Regent's Inlet; two seals shot.
 13th. One seal shot.
 14th. One hare shot, and an ermine seen.
 15th. Three seals shot.
 16th. Two ducks shot.

17th. A fox seen.

18th. A seal shot, and another taken from a bear; a gull and a duck shot.

24th. As usual seen.

25th. Several flocks of ducks flying eastward.

26th. Bellot Straits clear of ice as far as Western Head.

27th. Ice breaking up around the ship; 11 gulls shot.

28th. A large extent of harbor ice commenced driving out.

29th. Drifted with harbor ice, to which the ship is attached, between the Fox Island and the main, until 2 A. M., when the ice was brought up by the land and shoals; 4 A. M., western current ceased; 5 A. M., ice commenced drifting eastward; 9 A. M., made sail to a light S. W. breeze; 9^h 45^m. got clear of the ice, and proceeded into Port Kennedy; 11 A. M., anchored in 6½ fathoms off Observation Point.

30th. Ice breaking away from head of harbor; outer harbor almost clear; 11^h 30^m, harbor ice drifted foul of the ship; several gulls shot.

31st. Two gulls and one duck shot.

August, 1859. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL REMARKS.

DAY.	4h.	5h.	Noon.	4h.	5h.	Midnight.
1	m	"	"	"	"	"
2	c	"	"	"	"	"
3	"	"	"	"	"	"
4	"	"	"	"	"	"
5	"	"	"	"	"	"
6	"	"	"	"	"	"
7	"	"	"	"	"	"
8	"	"	"	"	"	"
9	"	"	"	"	"	"
10	"	"	"	"	"	"
11	"	"	"	"	"	"
12	"	"	"	"	"	"
13	"	"	"	"	"	"
14	"	"	"	"	"	"
15	"	"	"	"	"	"
16	"	"	"	"	"	"
17	"	"	"	"	"	"
18	"	"	"	"	"	"
19	"	"	"	"	"	"
20	"	"	"	"	"	"
21	"	"	"	"	"	"
22	"	"	"	"	"	"
23	"	"	"	"	"	"
24	"	"	"	"	"	"
25	"	"	"	"	"	"
26	"	"	"	"	"	"
27	"	"	"	"	"	"
28	"	"	"	"	"	"
29	"	"	"	"	"	"
30	"	"	"	"	"	"
31	"	"	"	"	"	"

NOTES TO AUGUST RECORD.

1st. One seal and fifteen ducks shot; also two gulls.

5d. 4^h 30^m A. M., thunder.

4th. Bellot Straits and Port Kennedy clear of ice.

5th. A seal shot.

6th. A deer and two seals shot.

7th. Harbor full of drift ice.

8th. Ice stationary; 8 P. M., ice settling into the harbor.

9th. 10^h 30^m. A. M., weighed and proceeded out of the harbor under sail and steam; noon, passing south end of Long Island; 1^h, passed between Brown's Island and off Lying Islet southeastward; 2^h 30^m, off Hazard Islet; 3^h, off Mt. Oliver; 8 to 12, steering between pack and land.

10th. 4 A. M., steaming past Cape Garry; Creswell Bay clear of ice; 11^h 25^m. A. M., made fast to grounded ice in 3 fathoms, 3 cable lengths off shore of Adcalde Bay; Fury Point 2° E. by N. (true); a seal and several dovekies shot; white whales, ducks, and mollymucks seen; pack closing in; low water 3 P. M.; ebb sets to S. W., along land; high water near midnight; rise 7½ fast.

11th. A white whale shot, 13 feet 2 inches long; pack closing in Creswell Bay.

12th. Ice driving to southwestward; no water visible in Creswell Bay or in N. E.; a seal seen; tide flowed until midnight; water rose 10 feet.

13th. Pack in offing driving southwestward; (4 A. M.) no water visible from mast-head, except inside the spaces into which we are lying; a small seal and some dovekies shot; many king ducks flying northward; high water at 12^h 30^m.

14th. 4 A. M., pack driving to southwestward; many ducks flying northward.

15th. Tide flowed until about 1^h 20^m. A. M.; at 5^h 45^m. P. M. Fury Beach bore W. (true) three miles distant.

16th. 2^h 45^m. A. M., off Blatty Bay, free from ice; 9 A. M., off Elwin Bay; 8^h 30^m. P. M., Cape Sepplog N. W. ½ W., distant 6'; ice seen extending from Leopold Island eastward.

17th. A black whale and some narwhals seen; Barrow Strait clear of ice as far as visible; 8 P. M., passed a small sheet of ice.

18th. Many narwhals about the ship; passing stream of loose ice; 9^h 30^m. P. M., passing Admiralty Islet; some pack or stream ice seen in shore.

19th. 4 A. M., two miles off Wollaston Island; running among loose ice; midnight (19-20), passing round Cape Byam Martin, distant 4'.

20th. Noon, off Cape Barney, distant 1½'; a bear and two cubs shot; 6 P. M., off Cape Graham Moore.

21st. No floe ice visible.

22d. Some rookies seen; passed several bergs.

23d. 75 bergs in sight; saw some stream ice in eastward.

24th. A few bergs in sight; 9 P. M., saw the land about Swarte Hook.

25th. A black whale seen; rookies seen.

26th. Saw the land about Mellom Fiord; 4 P. M., off Disco Fiord.

27th. 3 A. M., anchored in Godhavn Harbor in 7½ fathoms.

Specific gravity of sea water—

21st. 1.0278.

24th. 1.0270.

22d. 1.0275.

25th. 1.0285.

23d. 1.0263.

26th. 1.0275.

21st. [Anora alight in S. W. (true) at 11 P. M.—*B. of T. Papers.*]

September, 1859. RECORD OF THE WEATHER KEPT ON BOARD THE YACHT FOX, WITH GENERAL

REMARKS.

DAY.	4h.	8h.	Noon.	4h.	8h.	Midnight.	Speed the Course, of Sea, Water, 10
1	bc	"	b	bc	"	c	
2	oc	c	bc	"	"	"	260
3	oc	c	bc	oc	om	oc	272
4	"	oc	"	oc	"	"	268
5	bc	oc	"	"	bc	b	258
6	om	oc	oc r	oc q	bc	"	262
7	p	"	"	bc	"	"	262
8	bc	"	"	"	c	bc	265
9	oc h	"	bc	"	bc	"	300
10	bc h	"	"	"	bc	"	300
11	bc	bc h	"	"	bc	b	290
12	or	or q	"	om	"	bc	275
13	or f	or f	f	or	or f	fr	275
14	or f	"	"	om	"	or	275
15	oc	"	bc	oc	or q	bc	285
16	bc q	bc	oc	bc	"	bc	290
17	om	oc	"	"	c	or	
18	or	oc	"	om r	or q	oc	

NOTES TO SEPTEMBER RECORD.

- 1st. Proceeded out of Godhavn; two whales seen.
 2d. Passed several bergs.
 3d. Bergs seen.
 4th to 5th. Midnight; six bottle-nosed whales seen.
 6th. Bergs in sight; passed a drift pine log; midnight, slight aurora in S. E.
 7th. Bergs passed; a finer seen; midnight, aurora in S. W.
 8th. Bottle-nosed whale seen.
 9th. Passed piece of drift pine.
 10th. [Aurora, 10 P. M., in N. E.—*B. of T. Papers.*]
 15th. Porpoises seen.
 18th. 5 P. M., succeeded in 85 fathoms.

TABLE OF AURORAS, WITH OBSERVATIONS AND NOTES, BY DR. DAVID WALKER.
 (Copied from the log-book.)

DATE.	True Direction of Aurora.	DATE.	True Direction of Aurora.	DATE.	True Direction of Aurora.
1857.		1858.		1858.	
Oct. 30	S. to S. S. E.	March 2	* S. W. by S. to E.	Dec. 8	S. E. V.
Nov. 7	* S. E.	4	S. to W. N. W.	12	* N. W. to S. E. through
9	N. N. E. to N. N. W.	5	S. W. by S. to N. W.	13	"
9	* E. to S.	9	S. E. W. to E.	13	* S. E. to W. S. W.
9	S. E.	9	S. E.	14	* E. S. E. to N. W.
11	* N. W. to S. E.	16	* S. by W. to N. E.	15	N. W. through S. to E.
Dec. 9	E. N. E. to E. S. E.	17	* S. W. to E. N. E.	24	All over the heavens.
10	S. to zenith.	18	* S. by E. to E. N. E.	28	* W. by N. to S. S. E.
12	N. W.	Apri 8	* E. to N.	30	S. E.
13	N. E. to S. E.	10	* S. to E.	1859.	
14	E. to N. E.	11	* E. to S. E.	Jan. 1	* W. to S.
15	S. E.	12	* E. by S. to W. S. W.	2	* S. W. E.
17	* S. to N. E. and E. to N.	13	* E. to W. S. W.	3	S. E. V.
18	E. to W.	14	* E. to S.	8	W. S. W. to S. E.
1859.		15	* E. to S.	9	* W. to N. W.
Jan. 9	N. W. to S. E. and all	Oct. 28	* S. to W.	9	N. to S. through zenith.
11	S. W.	29	* S. S. E. to W. N. W.	10	* N. W. to S. E. by S.
12	S. to E.	30	* S. W. E.	11	N. to S. through zenith.
17	S. to E.	31	* N. W. E.	12	* S. E. to W.
Feb. 2	* S. E. to E. N. E.	Nov. 8	S. by E. to W. S. W.	31	* N. W. to S. E. by S.
3	S. E. to zenith.	7	* S. W.	* 23	W. to S. E. to zenith.
7	* S. E. to N.	8	* S. W.	Feb. 1	* N. W. to S. E. by S.
9	* N. E. to S. E.	9	* S. W.	8	* S. W. E.
13	S. S. E. to E.	9	* S. to W.	10	N. to S. through zenith.
15	S. S. E. to E. N. E.	12	N. to zenith.	20	S. to zenith.
19	S. E. to N. N. E.	14	* S. W. to W. N. W.	23	N. E. to S. W.
17	S. S. W. to S. S. E.	Dec. 3	* S. W. E.	28	N. to S. through zenith.
18	S. E. to E.	4	E. through S. to	March 6	N. W. to S. S. E.
19	S. E. E. to N. E.	5	W. N. W.	through zenith.	
		5	* S. E. to N. W.	30	* W. to S. W.
		8	* S. E. to W.	31	* W.

"During our drift down Baffin's Bay and Davis' Straits (1857-'8) the aurora was noticed on 45 nights; of these, 18—marked with an asterisk—were observed in a direction where water or water sky had been seen during the day. The general direction of the remainder was between N. E. and S. E. None were particularly bright but two or three, and even these scarcely equalled the brilliancy of those seen at times in the north of Scotland. On some occasions the aurora was from horizon to zenith, but generally from 10° to 40° above the horizon, with occasional streamers; these latter were generally present towards the zenith, but only sometimes reaching so far. At times pulsations were noticed in the patches and bands of light; these were often contrary to the surface wind. On the whole stars of all magnitudes were dimmed when viewed through the aurora, but only those of small magnitude

were rendered invisible. Often only was there noticed a connection between cirrus clouds and the aurora.

"Of the 42 auroras observed during our winter at Port Kennedy (1858-'9) 24—marked with an asterisk—were in a direction of a space of water, open throughout the winter, or of the vapor rising from it. More than this number might be traced to it, but of these 24 I am certain. On the nights of the 30th and 31st March, 1859, I noticed the aurora between myself and the land; the patches of light could plainly be seen a few feet above the small mass of vapor arising from the water. The opposite land was from two and a half to three miles distant, and I am confident, if this land had been sufficiently high, the most of these 24 auroras would have been seen suspended but a short distance above the surface of the water or ice. On five occasions the aurora was observed to cause ignition of the magnetic needle; on one of these, Dec. 24, 1858, I noticed a vibration of 150° ; on the other four times the vibration was not much more than a degree; four of these five occurred when the aurora was from south to north, passing through the zenith. A fine wire was attached to the fore yard-arm by insulated supports and led to a snow hook with a connection through the floe to the water beneath. Here the gold leaf electroscope was at times applied, and I was enabled to observe the presence of the electricity in the atmosphere and also the influence of the aurora on the instrument. There appeared to occur two periods of minimum electric intensity about 9 P. M. and noon; the instrument not being sufficiently delicate I could not be satisfied about the time of the maximum. On the whole there seemed to be more for electricity present in the air at Port Kennedy than Baffin's Bay or Davis' Strait. On six occasions in 1857-'8 I observed a well-marked effect on the electroscope by the presence of aurora, the gold leaves diverging with greater force and remaining so for a longer time than usual. On three occasions at Port Kennedy, when the aurora was from horizon to zenith, the electroscope was strongly affected; on all these occasions the electricity was positive."

[D. W.]

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